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I

THE SYSTEM OF PAYMENT BY RESULTS

The suggestion that the English principle of "payment by results" should be adopted as the best method of solving the question of religious instruction in the public schools of the United States, makes timely a discussion of that remarkable feature of the English system of public education. A brief account of its development is essential.

Previous to 1832 the English government had never done anything for the education of the people. Not one penny had ever been voted by Parliament, or by any local public authority, to pay a school-teacher or to build a schoolhouse. The existing means of education were the few hundred Endowed Grammar Schools scattered over the country; the parish or charity schools, that were the peculiar educational product of the eighteenth century; the schools founded after 1808 and 1811, respectively, by the two educational societies, the British and Foreign School Society and the National Society; and the Sunday schools, that still followed the example set by Raikes, at Gloucester, of teaching the simplest elements of learning, as well as religion. For the most part, tuition in the grammar schools was gratuitous, but still the expense of attendance excluded the lower classes. Moreover, the majority of these schools had fallen into decay, some because the tide of population had turned away from them, and some because they were badly managed. Instruction in the charity schools, which was commonly poor, was not only free, but clothing was often provided for the children as well. But

these schools were altogether insufficient in number and in equipment. Both the grammar schools and the charity schools were mainly under the control and management of the Established Church. The British Society, in its schools, aimed to teach secular studies and the Bible; the National Society, to teach the doctrines of the Established Church and secular studies. There was absolutely nothing answering to public schools, as that expression is now understood in most of the well educated countries of the world. The grammar schools bore that name, but they were strictly middle-class and upper-class schools, and they remain so to-day.

No one who understands the magnitude of national education need be told that this was a miserable educational provision for such a country as England. Of the whole population, only 1 in 11¼ was at school; whereas in Prussia the ratio was 1 in 6.27; in Holland, 1 in 8.11; and in France, 1 in 9. Malthus said it was "a great national disgrace that the education of the lower classes should be left merely to a few Sunday schools." Sydney Smith declared that "there was no Protestant country in the world where the education of the poor had been so infamously neglected as in England." Dean Alford wrote: "Prussia is before us, Switzerland is before us, France is before us; there is no record of any people on earth so highly civilized, so abounding in arts and comfort, and so grossly, generally ignorant, as the English."

In 1832 the government took its first step toward creating a system of public schools. Parliament voted £20,000 to supplement local enterprise in building schoolhouses. It was a small beginning. But Parliament repeated the grant for several years, and then it began to increase the sum voted. About the same time that the increase began, Parliament included normal schools and teachers' salaries in the grants. To trace minutely the successive steps that led up to the present system of elementary schools is here impossible and unnecessary, but a summary of four or five points will assist in understanding the present status.

When a good beginning had once been made, the govern-

ment rapidly expanded its operations. The grants voted for schools at intervals of five years will make this plain: 1835, £20,000; 1840, £30,000; 1845, £75,000; 1850, £125,000; 1855, £397,000; 1860, £798,000; 1865, £637,000; 1869, £415,000.

At first the money voted by Parliament was apportioned by the Lords of the Treasury on the recommendation of the two educational societies. But in time there began to develop, in the characteristic English manner, a Department of Education. In 1839 the Privy Council passed an order constituting four persons, named "a committee to superintend the application of any sums voted by Parliament for the purpose of promoting public education." "The committee," wrote Mr. T. H. Green, "which had at first to administer £30,000 a year, has grown into a great department of state, dealing with an annual grant from the exchequer of nearly £2,000,000, and exercising a wider and more important discretion than is left to any other office." Finally, Parliament passed an Act creating a vice president of the council, and making him the head of the committee on education; but with this exception, the whole mechanism of administration stood simply upon usage. The secretary of this committee, however, was and is its real head.

The department established an inspectorship. At first this extended only to the buildings that the government helped to build; but when grants came to be made for schools also, the inspection was extended to the secular teaching, leaving religious instruction wholly to the local managers.

The first rules of administration adopted by the Lords of the Treasury, and afterward by the committee on education, were called "minutes." But as these minutes multiplied, they finally were gathered into a document called "Code of Regulations by the Lords of the Committee of Privy Council on Education," or in a word, "The Code." Pursuant to the ninety-seventh section of the Act of 1870, the Department annually lays the code, revised from time to time, on the table of the Houses of Parliament. If it is not amended by the Houses, or rejected by either of them, within thirty days, it

becomes of force. The code in operation at any time contains the conditions that public elementary schools and training colleges for teachers must comply with, in order to obtain an annual grant from Parliament in aid of their maintenance.

It was in the Revised Code of 1861 that the principle of payment by results first appeared. Mr. Robert Lowe was then the vigorous head of the educational committee. The annual grant by Parliament had grown to more than three-quarters of a million sterling. The government, under the peculiar system, had no assurance that it was expending its money wisely. Repeated investigation, on the other hand, proved very clearly that much of it was little better than thrown away. Hitherto the government had made its payments to teachers personally, according to a prescribed schedule. Many of them were worse than incompetent. To remedy these evils, it was now proposed to make the payments to the schools rather than to the teachers, and to graduate them to the results of individual examinations of pupils, or to withhold them altogether. More definitely, the new propositions were these: "The school must be held in approved premises and must be under the charge of a certificated teacher;" "the children must have made a certain number of attendances;" "they must pass an individual examination in reading, writing, and arithmetic, and according to the results in each individual case, a grant was to be made." This last clause is the principle of payment by results that is proposed as a solution of the problem of religious instruction in the public schools of this country.

Mr. Lowe took the plan from the recommendations of the Duke of Newcastle's Commission, that had investigated the state of public education in the years 1858–1860. Mr. Lowe said the government must have proof that the teachers were doing their duty; class examinations were not adequate; such expressions as "general efficiency" and "moral atmosphere" in the reports of inspectors were "impalpable essences"; nothing would do but individual examinations. Mr. Lowe declared: "If the new system is costly it shall at least be effi-

cient; if it is inefficient, it shall be cheap." Hence, payment by results was, primarily, a mode of guarding the treasury. An American might think that the proper precaution for the government to take was to look after the examination, selection, and supervision of the teachers. But this the character of the system that had grown up prevented. The government did not examine, employ, or supervise any teachers. There were no school officers other than the committee at Whitehall and the inspectors and clerks whom it appointed. There were thousands of government-assisted schools, but there was not in England one state school, as we understand that expression. The government had formed a great number of educational partnerships with local managers scattered over the kingdom; the government furnishing a part of the money and a general inspection. The local managers provided the remainder of the money and local management. Fees were generally charged; and there was not, in our sense, a free school in England.

Dissatisfaction with this system grew quite as rapidly as the system itself. But it took very different directions. The Established Church, in the main, was well satisfied, because the system tended to its aggrandizement. The Dissenters generally were displeased; and many of them, because they saw the existing system contributing to the upbuilding of the Church, took up the position, in which they were supported by a considerable number of *doctrinaires*, that the state should not meddle with education, but leave it to voluntary enterprise. Then there sprang up the secularists, who stood on this platform, adopted at Birmingham in 1847: "To promote the establishment by law in England and Wales of a system of free schools, which, supported by local rates and managed by a local committee specially elected for that purpose by the ratepayers, shall inspect secular instruction, only leaving to parents, guardians, and religious teachers the instruction of religion; to afford opportunities for which it is proposed that the school shall be closed at stated hours each week."

But in the midst of the confusion there was a growing con-

viction that the state must go farther and do more. Popular education entered into politics. In 1867 the Queen, in the speech from the throne, commended the subject to the attention of Parliament, and in 1869 Mr. Gladstone came into power, with an immense majority in the House of Commons, pledged to new measures. One of the great achievements of his ministry was the Elementary Education Act of 1867, often called the "Forster Act," from the fact that it was carried through the Commons by Rt. Hon. W. E. Forster, the vice president of the council and head of the educational department. This act, and two supplementary ones, the Sandon Act of 1876, and the Mundella Act of 1880, are the basis of the elementary educational system of England and Wales as it exists to-day.

The Forster Act was a deep disappointment to those who desired the establishment of a state system of schools, pure and simple, leaving private schools and parochial schools to find their own place. It changed the existing edifice somewhat, put on a large addition, and put a new foundation under the whole structure. In explaining the bill, Mr. Forster said the government "must cover the country with good schools, and get the parents to send their children to those schools." This one sentence from his speech well characterizes the measure: "Our object is to complete the present voluntary system, to fill up gaps, sparing the public money where it can be done without, procuring as much as possible the assistance of the parents, and welcoming, as much as we rightly can, the co-operation and aid of those benevolent men who desire to assist their neighbors." The most radical feature of the new Act was this: it divided the kingdom into school districts; ascertained in what districts additional school facilities were needed, and to what extent; created local school boards, empowered and required to vote local rates for the maintenance of schools to be carried on under their management, these new board schools being intended to fill the gaps in the existing system.

The Act of 1870 defined an elementary school as "a school or department of a school at which elementary education is

the principal part of the education there given, and does not include any school or department of a school at which the ordinary payments in respect of the instruction from each scholar exceed ninepence a week." The definition of a public elementary school is much more elaborate, viz.:

"Every elementary school which is conducted in accordance with the following regulations shall be a public elementary school within the meaning of this Act; and every public elementary school shall be conducted in accordance the following regulations (a copy of which regulations shall be conspicuously put up in every such school), namely:

"'(1) It shall not be required, as a condition of any child being admitted into, or continuing in the school, that he shall attend, or abstain from attending, any Sunday-school or any place of religious worship, or that he shall attend any religious observance, or any instruction in religious subjects in the school or elsewhere, from which observance or instruction he may be withdrawn by his parent, or that he shall, if withdrawn by his parent, attend the school on any day exclusively set apart for religious observance by the religious body to which his parent belongs.

"'(2) The time or times during which any religious observance is practised, or instruction in religious subjects is given at any meeting of the school, shall be either at the beginning or at the end, or at the beginning and the end of such meeting, and shall be inserted in a time-table to be approved by the Education Department, and to be kept permanently and conspicuously affixed in every schoolroom, and any scholar may be withdrawn by his parent from such observance or instruction without forfeiting any of the other benefits of the school.

"'(3) The school shall be open at all times to the inspection of any of Her Majesty's Inspectors, so, however, that it shall be no part of the duties of such Inspector to inquire into any instruction in religious subjects given at such school, or to examine any scholar therein in religious knowledge, or in any religious subject or book.

"'(4) The school shall be conducted in accordance with the conditions required to be fulfilled by an elementary school in order to obtain an annual parliamentary grant.'"

It will be seen that a public elementary school in England is something very different from such a school in the United States. It may be a board school or a voluntary school; and if a voluntary school, it may be a Church school, a Catholic school, a Congregational school, or a Jewish school. Board schools derive their income from the parliamentary grants, the local rates, fees or "children's pence," and voluntary contributions. Voluntary public schools have the same sources of income, except the rates. The conditions to be fulfilled by schools in order to obtain an annual grant, in addition to those prescribed in the law itself, are laid down in the code. Some of the principal conditions found in the code of March, 1890, that went into operation September 1, are the following:

The school must be conducted as a public elementary school; no child must be refused admittance on other than reasonable grounds; the time-table, and also the fees charged by a board school, must be approved by the department; the school must not be unnecessary, nor be conducted for private profit, nor be farmed out to the teachers; the principal teacher must be certificated; a day school must have been in session not less than 400 half-days in the year; the school premises must be healthy, and the school be efficient; the managers must make the required reports, and publish annually accounts of their income and expenditure; and the income must be applied only for the purposes of public elementary education.

The annual grants made to schools complying with these conditions consist of several grants, that are determined by a set of very technical rules. Unless otherwise ordered, the grant is made for each "unit of average attendance"; or, as we should say, the average daily attendance for the year. Omitting qualifications, the grant for an infant school, comprising children of from three to seven years of age, is made up

as follows: (1) A fixed grant of 9s. or 7s.; (2) a variable grant of 2s., 4s., or 6s.; (3) a grant of 1s. for needlework; (4) a singing grant of 1s., if the singing is *by note*, or of 6d. if *by ear*. That is, a "unit of average attendance" may "earn" (as it is called) 17s. for this school, while forty such units may earn forty times that sum.

The grants to a school for older scholars are much more complicated. There is (1) a principal grant of 12s. 6d. or 14s.; (2) a fixed grant for discipline and organization of 1s. or 1s. 6d.; (3) a grant for needlework of 1s. (for girls only); (4) a grant for singing of 1s. or 6d.; (5) a grant for examination in class subjects of 1s. or 2s.; (6) a grant on examination of individual scholars in specific subjects of 4s.; (7) a grant (for girls) for cooking; and (8) a grant (for girls also) for laundry work. Class subjects are English, geography, elementary science, history, and needlework for girls. The specific subjects are algebra, geometry, mechanics, chemistry, physics, physiology, botany, principles of agriculture, Latin, French, domestic economy, Welsh (in Wales), German, bookkeeping, and shorthand.

Then there are special grants for day schools in respect of pupil teachers and of assistant teachers employed for schools so situated that they are put to unusual expense, and for evening schools. Training colleges for teachers are also provided for. The total annual grant to any school, exclusive of special grants, shall not exceed 17s. 6d. for each unit of school attendance, or the total income of the school from all other sources than the grant. It may be asked why the grant varies, consisting of so many different items. The answer is easy. It was found necessary to break up the monotony developed when the Revised Code was first put in force, and the aim of school managers was to crowd as many pupils as possible through three or four elementary studies.

Such, in outline, is the origin and nature of the rule of payment by results that is commended for our acceptance here in America. To quote Mr. Matthew Arnold[1]:

[1] *The Reign of Queen Victoria*, II: 26.

"To a clever Minister and an austere Secretary, to the House of Commons and the newspapers, the scheme of 'payment by results,' and those results reading, writing, and arithmetic, 'the most necessary part of what children come to school to learn'—a scheme which should make public education, 'if not efficient, cheap, and if not cheap, efficient'—was, of course, attractive. It was intelligible, plausible, likely to be carried, likely to be maintainable after it had been carried. That, by concentrating the teacher's attention upon enabling his scholars to pass in the three elementary matters, it must injure the teaching, narrow it, and make it mechanical, was an educator's objection easily brushed aside by our public men."

It was adopted in the face of the remonstrance of the highest educational authority of the country. It was the device of a man who looked at education from the standpoint of the treasury, and not the standpoint of the schoolhouse. It has never been adopted on the Continent; and Mr. Arnold attributes some portion of the inferiority of the English schools to its influence. It was a makeshift when adopted, and a confession on its face that England had no system of state schools. No doubt it corrected the particular evils that troubled Mr. Lowe. This is shown by the large falling-off in the grants from 1860 to 1869. But it engendered other evils that a high English authority has thus summarized[2]:

"(*a*) It has organized a system of cram, under which 'results,' measured by the standard examinations as opposed to 'methods,' have received undue recognition and reward. (*b*) All scholars, whether clever or dullards, progress at the same rate—one standard per annum, and at the same rate in all subjects simultaneously. (*c*) The degree of success, with neglect, incapacity, and the bad influences of home surroundings, meets with little recognition as compared with the success in 'passing' a high percentage of scholars. (*d*) The profession of the teacher is degraded by persistent and obtrusive appeals to the desire of gain. In the absence of monetary inducements,

[2] Sonnenschein's *Cyclopædia of Education*: Article, "Payment by Results."

teachers are tempted to neglect scholars who are not likely to earn good grants. (*e*) Little encouragement is given to teachers to forward the higher moral and intellectual training of their scholars as opposed to the mere acquisition of mechanical facilities in the subjects of examination. (*f*) Scholars trained under this system, and subsequently passing on to secondary schools, are characterized by a lack of mental alertness, and frequently disappoint their early promise."

For many years the most intelligent friends of education in England have been struggling to rid the schools of payment by results. The Education Department itself has labored to mitigate its evils; in the present code, for instance, throwing the individual examinations out of the infant schools altogether, and otherwise limiting its operation. But all efforts to throw off the incubus have hitherto proved unavailing. It was adopted to guard the treasury rather than the schoolhouse; and it is felt in influential quarters that the need still exists, in view of the mixed character of the public school system. The Department could easily manage the board schools, but there have grown up since 1832 thousands of voluntary schools that are fed from the treasury by this principle as a feeding-pipe. The state of things that existed in 1861 still exists, and in an intensified form. There has been since 1840 a veritable concordat existing between the state and the Church schools, and this the state does not see its way to break up. What the future may be, it is hard to predict; but for the time sectarianism is the pledge of the system of payment by results in the schools of England.

To adopt this system in the United States would be the height of folly. There would arise systems of schools within a system. There would be the board public schools, the Catholic public schools, the Lutheran public schools, and so on. As a consequence, children and teachers would be segregated according to their religious affiliations; points of friction would be multiplied; irritation and jealousy would increase, and the public school system, in the best of all senses, would cease to exist.

Not very long ago the older portions of the United States were supplied with schools of a very heterogeneous character. In most States there were the State schools, not well organized and nowhere free. In all the States there were private schools and denominational schools of various kinds. In these schools of various kinds the children were distributed with large reference to social rank, condition, and religious connections. Narrowness and selfishness were the result. It is the glory of the public school system, as it now exists, to have swept this order of things away. Thousands of private schools and denominational schools have disappeared. Save the large number of children in the Catholic parochial schools, and the small number in the parochial schools of other churches, and the small number who attend private schools for private reasons, the children of the state have been brought together in one system of schools, erected and supported by the state. With all the faults of these schools, the intellectual, moral, social, and political interests of the country have been greatly promoted by them. To build up this system has cost a vast amount of labor, of thought, and of money. It has been opposed at every step by the friends of special educational views and of narrow interests. It is *one* system, and *one* it is likely to remain. In England, where social distinctions are old and firmly rooted, where the Established Church is all powerful, where the strife between the Establishment and Nonconformity is bitter, payment by results may be temporarily useful in aiding the people to reach a unified system of state schools. In the United States there is little reason to fear that it will be allowed to enter to disintegrate and finally destroy the system that now exists.

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II

RELIGIOUS INSTRUCTION IN STATE SCHOOLS

AN AGNOSTIC VIEW

Two prominent and diverse ideals with reference to the training of the young are brought before the mind of the student of pedagogical science. The one may be termed the mechanical ideal, the other the vital; or, from a somewhat different point of view, one method may be termed empirical and the other scientific. The first is best characterized by the term "instruction"; the latter by the term "education." The one aims to instill into the mind of the child certain facts assumed to be verified, and certain definitely formulated ideas and principles bearing upon the various topics of intellectual apprehension, which must be received on authority of the teacher or text-book and memorized by the pupil. The other subordinates the memorizing of facts and dates and verbal formulas, and aims chiefly to draw out that which is in the mind of the child, to energize and cultivate his faculties of perception, observation, and original judgment, thus fitting him for creating direct and original relations with the problems of thought and life, and enabling him to battle successfully with the resistance which he is sure to meet in the subsequent experiences of an active career in the competitive arena of the social world. The one method, in short, aims to *form* the child on some preconceived mold or model of authority; the other to *inform* him by stimulating and developing to harmonious uses all the native powers of his being.

In all departments of ordinary intellectual training, the wise instructor at the present day recognizes the fatal defects of the first method, and the transcendent excellence of the second. More and more the text-book is subordinated to the living voice of the trained and intelligent teacher; more and more a true comprehension of the principles of psychological

science is recognized as essential in the educator; more and more the personality of the child is respected, and the efforts of the teacher are wisely directed to secure his natural and harmonious development.

There is one department of thought, however, in which there is a very general opposition to the employment of that method which in all other departments is recognized as supremely excellent. That department, which in its name assumes to possess the character and functions of a science, is termed theology. When we investigate its pretensions to be regarded as a science, or "word," or "logos," of the infinite, we find instead of a single well defined system of thought, universally accepted as true by intelligent minds, methods as diverse as the innumerable contending sects. It is not my purpose to compare, or estimate, the respective values of the claims made for these numerous theological systems. I desire simply to note that theology bears a very different relation to pedagogical science from mathematics, or natural science, or history, or geography, or any of the ordinary branches of intellectual culture. In all other departments of thought, with the possible exception of philosophy, there is a body of data and of laws derived therefrom by scientific induction, which is recognized as possessing universal validity. In theology, there is no universally recognized "consensus of the competent" to determine what shall or what shall not be accepted and taught as true. No form of theology, therefore, possesses that scientific justification which entitles it to be regarded as truth and taught as such in our public schools.

As an American, I do not assume that, in this country, we have attained perfection in our modes of government, in our conduct of public education, or in our estimate of the values either of ideas or of institutions. In some respects we are evidently far from the attainment of this ideal. In regard to the relations of the church to the state, however, I believe we have set an example to the world which other nationalities will one day be compelled to follow, and to which

we ourselves may well render a more rigid and exact obedience. Our fathers had before them the lessons of all history, and declined to allow the newly launched ship of state to be wrecked on the rocks of theological disputation. The descendants of New England Puritans, of Rhode Island Baptists, of New York and Virginia Episcopalians, of Pennsylvania and Rhode Island Quakers, and of Maryland Catholics united in declaring that in this country church and state should be forever separate; that every man should be free to follow the dictates of his own conscience in matters theological; that religious dogmas should not be inculcated by the state nor elevated into conditions of citizenship. In some minor particulars we have failed to be wholly consistent with this high ideal, but on the whole we have held it steadily in view. We have squared our institutions to it, and I believe its principles are to-day accepted and respected by the vast majority of American citizens of whatever religious connection.

I have read with deep interest the discussion of the question of Religious Instruction in State Schools in the EDUCATIONAL REVIEW [1] by Bishop Spalding and Dr. Grant. The former suggests rather than clearly defines the position held by the Catholic Church, in a style and temper so altogether admirable that it will doubtless carry conviction to some minds which would violently oppose a more impetuous and forcible demand. Bishop Spalding's article is one which every protestant Christian and every dogmatic "liberal," as well, would do well to read; and in which all men, of whatever creed, or no creed, may find much which compels assent. When the Bishop says, for example, that "the end of education is to fit man for completeness of life, to train all his faculties, to call all his endowments into play, to make him symmetrical and whole in body and soul," he eloquently voices an ideal which all thoughtful educators are compelled to recognize as expressive of the highest truth; and his concluding paragraph is instinct with noble and uplifting thought which, in its essence, must command assent even from those who ignore

[1] II: 105; III: 40.

or deny its theological implications. What thoughtful man can fail to perceive with him that "the deeper tendency of the present age is not to exclude religion from any vital process, but rather to widen the content of the idea of religion until it embrace the whole life of man"? So complete is my own agreement with this pregnant thought that I propose to make it the text for a brief discussion of the subject of religious education in state schools from the standpoint of the philosophical agnostic.

My own agnosticism is of the Spencerian rather than of the Huxleian type, and I have little intellectual sympathy with that crude variety of dogmatic "liberalism" which sometimes masquerades behind the agnostic name. Yet I confess my fellowship with that class which Dr. Grant so cavalierly rules out in his opening paragraph as possessing no rights which the majority is bound to respect. In the benighted regions of the Provinces it may be that "gnostics" are plentiful and agnostics are few; but in the metropolis of America I do not find myself without company. Indeed, I find kinship of thought on every side, and perceive in that I am one of a numerous and growing army, who, on the basis of modern scientific psychology, are forced to admit that there are some things that they do not and cannot know. In this country we are not disfranchised for our intellectual modesty. We are permitted to affirm in the courts, to serve on juries, and to live on amicable terms with our more or less orthodox fellow-citizens. In some quarters we are even welcomed to the churches and permitted to teach the things that we do know, or think we know, in the Sunday schools. Nor are our rights in the public schools seriously abridged. I have even seen it hinted in the veracious newspapers of the vicinage, and charged in the more or less veracious theological conferences, that some of us are seated in public pedagogical chairs. It is nowhere asserted, that I have seen, that we are not good and conscientious teachers when we are thus honored, or that we force our own intellectual convictions upon the pupils committed to our care.

That I may make my position somewhat clearer, let me ask, then, Who is the philosophical agnostic? What does he ask of the state in the matter of public education?

The agnostic is one who recognizes the limitations, the finiteness, of the human intellect. He perceives, not that there is no infinite reality external to the human mind, but that this reality can only be known to man symbolically, as determined by the nature of his psychical limitations. The philosophical agnostic does not agree with Issaurat, in his wholesale denunciation of religion, as in the passage quoted by Bishop Spalding. Issaurat represents a class with which the agnostic has even less sympathy than he has with the dogmatic theologian—the equally dogmatic assertors of materialism. In the person of its ablest representative, Mr. Herbert Spencer, philosophical agnosticism recognizes the reality of the religious faculty in man, and makes no protest against its rational culture and normal activity. This, indeed, Mr. Spencer regards as essential to the full and complete life, the attainment of which is the supreme aim of his ethical and social philosophy.

Religion, however, to the philosophical agnostic, is by no means to be identified with the theological garments in which it happens to be clothed. These it changes from age to age, to suit the intellectual requirements of various peoples in different stages of culture and development. The reality, however, persists in spite of these shifting phases of its manifestation, and will endure when the last vestige of anthropomorphic and man-made theology is stripped from its essential truth. Taking this view of religion, the agnostic would have no objection to the training of the religious nature of his children in precisely the same way as that in which the most enlightened educators aim to train their intellectual natures. He does object strongly, however, to the inculcation, even by inference or object-lesson, of theological dogmas, which, in his view, can never do otherwise than distort, and unwisely bias and misdirect the normal activities of the religious sentiment.

Nor does the agnostic conceive it impossible to train and develop the religious sentiment without the inculcation of dogma, or even apart from any technical Christian teaching. The essentials of the religious sentiment, which underlie all its specific manifestations, are reverence, faithfulness, and faith in the reality of the Unseen. All these sentiments and faculties may be stimulated along with the moral and intellectual training of children without any dogmatic teaching; and unless the teacher can arouse these sentiments in his pupils in connection with their daily tasks, he is lacking in complete preparation and qualification for his worthy and noble undertaking.

All teaching implies the fundamental distinction between truth and error—between that which conforms to reality and that which does not so conform, or merely appears so to conform. Reverence for truth, then, lies at the very foundation of all knowledge, and must be inculcated at every step of intellectual advancement. With the evolution and wise culture of the rational nature, and the cultivation of habits of reflection, the mind will naturally come to regard the order of nature, and those higher uniformities of conduct which constitute the perfect flower of human character, as phenomena of an underlying and indwelling reality, which is the source and nexus of all specific forms of truth, and merits the reverence which the mind has been taught to bestow upon the principle of truth everywhere. Parents who deem the teaching of dogmatic theology essential, can easily divert this sentiment into channels which they deem desirable, by instruction in the home or the Sunday school, while the mind of the child remains plastic and receptive; but this is manifestly no part of the duty of the state, as we define it in America.

Whether we derive the word religion from *relegere* or *religare*, that "binding back" which implies a consciousness of obligation to submit to the requirements of those laws by which we are related to the nature of things, or that "conning over and over," which implies the persistent search for that which is real and true, both of these conceptions symbolize the quality of *faithfulness* which is essential to the manifestation

and exercise of the religious sentiment. Here again we have a quality which is necessarily and naturally developed by all wise educational methods, and the growth of which may be stimulated apart from all ceremonial acts or dogmatic teaching. We rightly affirm of him who applies himself to the duty of the hour with sincerity and faithfulness that he *religiously* performs his obligations. As the quaint George Herbert says:

> Who sweeps a room as by His laws
> Makes that and the action fine.

It is this sort of religion, which enters into every thought, which inspires and elevates every act of the daily life, that the agnostic thinks it important to teach and to practice, rather than that which differentiates religion from life, and makes it consist in special acts of ritual and worship;—a religion which, as Bishop Spalding says, "is not the worship of infinite wisdom, holiness, and justice alone, but is also the worship of the humane, the beautiful, and the industriously active."

Faith in the Unseen Reality is inculcated by daily experience in all faithful work. It may seem strange to those who have studied agnosticism in the camp of its enemies to find this sentiment held up as a part of the agnostic's creed. He is ordinarily regarded as one who has no faith in anything—who repudiates faith as the mother of all superstitions, and accepts nothing which cannot be logically and inductively demonstrated. The existence of an Unseen Reality which, owing to the limitation of his faculties, is in its essential nature unknowable, is, however, the fundamental postulate of the agnostic's creed. Herbert Spencer declares the apprehension of this Reality to be the most certain of all our knowledge. But with one of old he asks, substantially, "Who by searching can find out God? Who can know the Almighty to perfection?" Who shall declare a *science* of the Infinite?

Indeed, we may not only apprehend the existence of this reality, and know that our own lives, as well as the life and being of universal nature, are dependent upon it, but reason teaches us, as Mr. Spencer declares, that though to clothe it

with human personality and consciousness were to limit and belittle it, yet we must believe that it "transcends human personality and consciousness as much as these transcend a plant's functions." It is greater, not less, than all that we see and know. Here, then, is an abundant stimulus to faith in the Unseen, as a reality superior to all the shifting phenomena of the senses, and without which these phenomena are an idle phantasmagoria, unrelated to any common principle of life, manifesting no intelligible trend or purpose. I cannot grant the assertion of Bishop Spalding that sectarians more than others experience a moral fervor, an enthusiasm for humanity.

Reverence, faithfulness, and faith—are not these ethical as well as religious qualities, and as such are they not inculcated in all serious and faithful work? Granting with the student of human origins, that religion is older than morality, and arises from a different source; admitting as all close observers must, that a lofty sentimental piety, and rigid observance of ritualistic practices, are quite consistent with a very imperfect sense of justice and moral obligations; it is nevertheless true that in our day no conception of religion is complete which is not inclusive of morality. It is a significant admission of Bishop Spalding that the tendency to ignore creeds, which he rightly interprets as a sign of waning belief in dogmatic religion, is accompanied by an increasing emphasis on the moral aspects of the religious life. So far is it from being true that moral fervor is kept alive by ritual observances, that I believe the exact opposite to this statement more nearly expresses the truth. The identification of morals with sectarian dogmas and ceremonial observances, has been well-nigh fatal to all the genuine springs of ethical effort. It has based morality upon the shifting sands of a verbal statement of truth, instead of upon the truth itself as revealed in the nature of things—in the constitution of the universe. By its emphasis on remote and extrinsic penalties for wrong-doing, it has robbed the soul of the finer ethical insight which declares that the effects of evil acts are intrinsic, and instantly enforced

in the atrophy of character. In this era of crumbling creeds and shifting opinions, the greatest service to morality is to teach the momentous truth that the enforcement of the moral law is not dependent upon man's speculative opinions about God or the universe. It is the false teaching that it is so dependent, and not the contrary teaching which renders the moral law meaningless. This teaching of the instant penalty of wrong-doing will be as effective with the children of atheists and agnostics, of materialists and infidels, as with those of the most devout Christian; and there is no place, except the family, where it can be so effectively enforced as in the public school.

Though the public school may not teach dogma or ritual, or rightly force upon any pupil a stated reading of the Bible, or repetition of prayers, there is no reason, therefore, why it should not wisely cultivate the religious nature of the pupil and teach the soundest principles of morality. If the parent at home or in the Church chooses to have this teaching supplemented by instruction in the tenets of his particular faith, well and good. To this the agnostic can raise only a moral and rational objection, for over the action of sectarian parents in their individual and parental capacity he has no control. But when it is proposed to introduce sectarian teaching into public schools, or to appropriate the public educational funds to denominational institutions of learning, he is impelled to enter his most emphatic protest.

Nor, in entering this protest does he speak for himself alone, or for those only with whom he is in intellectual agreement; nor for these inclusive of the small number of avowed atheists and "infidels," whose rights are violated by such a misuse of educational opportunities. His judgment herein is sustained by large numbers of the thoughtful friends of public education among all denominations of Christian believers, who see clearly that the allotment of educational funds to denominational schools would be the practical destruction of our public school system, and that the only logical ground upon which we can resist the demands of our Catholic fellow-citizens for such a

division is that of the complete secularity of our public schools. Half-way measures like those advocated by Dr. Grant are acceptable neither to the Catholic nor to the liberal; the solution of this problem can only be found in a position of absolute equity to all classes in the community.

The cultivated philosophical agnostic deeply regrets the necessity of excluding from the schools the classic literature of the Hebrew and Christian Scriptures. If some of the Psalms and portions of the law and prophetical writings, with the Sermon on the Mount and other selections from the New Testament, could be read as literature and for ethical inspiration, together with the ethical writings of the Buddhist, the wisdom of Confucius and Mencius and the Stoic philosophers, without sanctimoniousness of tone, or tacit assumptions of fetichistic efficacy, there could be no objection to such readings—at least, not on the part of the agnostic. The sectarian, I suspect, would object to such use of these literatures, as it would tend to break down that exclusive reverence for the Bible as a supernatural revelation which he desires to inculcate, and to place its ethical teachings upon the same ground as that whereon the wisdom of uninspired sages is permitted to rest. The study of comparative religion gives breadth to the mind, and is full of the noblest ethical inspiration; but for similar reasons this, too, is excluded not only from the curriculum of our public schools, but too frequently from our universities and advanced institutions of learning.

But if we cannot inculcate breadth of view and depth of moral sentiment by the use of these noble literatures, our public schools have left a well of ethical inspiration in the study of the exact sciences. President Andrews, of Brown University, has recognized this function in scientific instruction in a beautiful passage which I cannot refrain from quoting:

"Science," he affirms, "enriches the higher life of humanity, not out of its intellectual funds alone. Ethical principles and practice are stiffened by influences from the same source. Instance, the love of right for right's sake, the reverence of simple truth, irrespective of consequences, which has come

into being almost solely from the inculcation of exact science. This is a result for which those who love righteousness should be grateful to the Positive Philosophy. In this respect the positivists have, without thinking of it, become powerful ethical teachers. They have insisted, as had never been done before, upon the importance of laying aside prejudice and interest, and getting at simple, unalloyed fact. There has been called into existence thus a new, distinct, and most beautiful form of the love of truth. This noble phase of virtue is emphasized and nourished to-day in every scientific laboratory and classroom throughout the world. It has come to possess even theology, and will yet revolutionize that science. It has gone over into the study of the past, and founded the science of historical investigation. Many false but time-honored judgments touching the men and things of former times are changing in consequence of the truer historical apprehension engendered from this cause. It results that national and ecclesiastical animosities are becoming less intense, opening the way for larger peace and good will toward men. . . Natural theology will have to be recast, but its new form will add infinitely to its impressiveness. We shall find it no loss to have relinquished the untenable distributive theology of Paley, when in its stead is installed that grander thought of a perfect cosmic unity reached through the clash of forces energizing apparently without aim. Science is destined to prove at this point an immense missionary power." With these noble words of this able and conservative educator, I most heartily agree. As long as science remains in our common schools, we need fear no decay of the moral sentiment, though every shred of dogmatic theology goes out.

In a country like ours, where the intelligence of the citizen is the sole safeguard of our free institutions, the public school is a vital necessity. Imperfect as our system doubtless is in many respects, it must be sustained, strengthened, and perfected by all the means at our command. To this end we need unity of purpose and wisdom of plan and administration. Our system of public education is too sacred to be thrown

into the arena of sectarian dispute. The agnostic does not ask that his particular belief shall be inculcated in the schools. He does not plead for any special favors at the hand of the public. He only asks, in common with large numbers of his fellow-citizens, that the schools be protected from disintegration by conforming to the simple requirements of equal justice in the matter of religious instruction. He asks that the recognized principles of natural morality be clearly taught, and the intrinsic penalties of wrong-doing be plainly inculcated. This, he believes, cannot be successfully done while classes or individuals are subjected to injustice in the administration of public education, as they are by the enforcement of religious observances in violation of their conscientious convictions. The agnostic asks, therefore, that the public school be sacredly devoted to the inculcation of those common truths which are embodied in proper courses of secular instruction, including such incidental training of the moral and religious nature of the pupil as is the natural accompaniment of all wise educational efforts. Thus only, he believes, can our schools be successfully maintained; thus only can we logically resist all efforts for the disintegration of our public school system by the division of the educational funds; thus only can public instruction be so applied that it will produce nobler and more manly men and women, and better American citizens.

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III

COMPULSORY EDUCATION IN THE UNITED STATES, (III)

It is the purpose of the present paper to set forth the problem of compulsory education as it presents itself to the American people of to-day, and to put to the test of results, so far as possible, the methods adopted for its solution. It is hardly necessary to explain that the problem is not quite the same now that it was a half century ago. Perhaps it would be more accurate to say that the conditions of the problem are not the same. The coming to our shores of increasing numbers of foreign born, the growing up among us of thousands upon thousands of the children of these foreign born, the massing in our great cities of both foreign and native populations, the settlement in our Northwest and newer West of hundreds of alien colonies, the development in our manufacturing communities of great industries employing the unskilled labor of children—these facts and others equally significant have rendered the once simple question, How shall the youth be instructed? more difficult to answer here in America in the closing years of this nineteenth century, than in almost any other country of our rank in civilization. Under these changed conditions, we find the discussion of compulsion chiefly centering at three vital points of agitation. These are: (1) The restriction of the employment of children of school age; (2) provision for the children of the very poor, so that they may not be kept from school by sheer destitution; (3) regulation and limitation of the amount and kind of instruction offered as a substitute for that of the public schools, especially of the instruction given in schools supported by religious bodies for children of alien parentage or descent.

To illustrate modern methods of dealing with the different phases of the first in this group of very practical problems, I

cannot do better than to refer to Rhode Island's experience; for while the labor of children has been a subject of legislation in many States, it has nowhere else come to be a matter of real concern to so large a proportion of the population. About ten years ago Rhode Island first became thoroughly aroused to the necessity of placing some reasonable restriction on the employment of children in factory labor. There had been feeble attempts at restriction in the past, by a kind of local option which left all initiative to the towns and cities, but these had been fruitless. In the meantime, the neighboring States of Massachusetts and Connecticut, starting with the somewhat crude enactments already noted,[1] had made marked progress in working out efficient systems of supervision, and several other States had followed their lead. The immediate effect, however, of this activity on the part of her neighbors had been anything but favorable in Rhode Island, for families had come thither from Connecticut and Massachusetts for the express purpose of getting employment in mills for their children, who had been kept out of such employment by the vigilance of the truant officers in their former homes. The result was that ignorance became an evil that could no longer be disguised. The showing made by the census of 1880 was appalling. The proportion of illiterates to the whole population—11 per cent.—was unequaled in any other Northern State. The foreign element in Rhode Island's population is large, and hopelessly ignorant, so far as the adults are concerned. It was evident that the State must take active measures to secure the schooling of the young children (19 per cent. of whom lived in the cities and large villages), or this living mass of illiteracy would grow steadily greater.[2]

The law which Rhode Island finally enacted as a partial safeguard against the growing evil disclosed by the census returns, was by no means extreme in any of its provisions. Compared with the legislation of Massachusetts and other New England States, it was decidedly moderate. Connecticut

[1] EDUCATIONAL REVIEW, III: 447–448.

[2] Rhode Island School Report for 1882, pp. 113–119.

and Massachusetts had made thirteen the minimum age of employment in factories, stores, and workshops. Rhode Island placed the restriction at ten, and then made it apply only during school hours. The compulsory period was made unusually long—between the ages of seven and fifteen—but only twelve weeks' attendance in each year was required. Children between ten and fifteen may not be employed except in vacations, unless they shall have attended school for twelve weeks in the twelve months preceding employment. Rhode Island officials have found even this law, which is apparently far less exacting than most employment laws of recent date, quite hard enough to enforce. There has been almost constant complaint as to the employment of children under ten in factories. Still great progress has been made in bringing this class of children into the schools, and in some communities truancy seems to have been practically done away with.[3] The State commissioner of public schools believes that a more uniform execution of the law may be obtained by giving supervisory power to State officials, as is done in Connecticut. The Rhode Island experiment may be said to be the only vigorous attempt, begun under wholly modern conditions, to deal with this question of child labor as a part of the educational problem. The laws relating to the employment of children in the other New England States had been in force before the French Canadians had settled in the factory towns in any considerable numbers. The newcomers found the laws in operation, and were compelled to obey them. In Rhode Island, on the other hand, the children of foreigners had been growing up in ignorance for years, in some communities, before an attempt was made to bring them into the schools. Considering the difficulty that must, of necessity, attend the execution of any law under such circumstances, the State is to be congratulated on the measure of success thus far attained.

The number of States provided with some form of children's employment regulation is steadily increasing. The influence of the labor unions in securing such legislation has been im-

[3] Report of United States Commissioner of Education, 1888–89, I: 503.

portant, and frequent national conferences of State labor commissioners and factory inspectors have dealt with the question to some purpose. In most cases the sections in the old compulsory education laws relating to the subject have proved entirely inadequate, and recourse has been had to new and distinct enactments, in which the requirement of school attendance is incidental to that of exemption from employment. It will take time to overcome the greed and short-sightedness of parents; but the argument against child labor, on purely economic grounds, leaving education out of account altogether, is a powerful one. Child labor lowers the standard of living, and lowers the wages of adults.[4] Once let this truth be clearly apprehended by workingmen, and it can hardly be doubted that public sentiment, which, in this country, is always a far more effective agent of reform than legal restriction, will make child labor not merely unpopular, but impossible.

But in the case of children living in extreme poverty, the difficulties in the way of school attendance are not removed simply by shutting the avenues of employment. After the child has been taken from shop, or mill, or store, he must still be clothed, if he is to be sent to school, and truant officers in cities frequently meet with cases where the parents plead lack of necessary clothing as the cause of their children's absenteeism. How to deal with these cases of destitution becomes an exceedingly important question in connection with compulsory school attendance.

It is often assumed by writers that, under our American public school system, rich and poor have always enjoyed equal opportunities on equal terms, but this assumption is based on inaccurate knowledge of the facts. Not to go back to the times when the schools were free to poor children, while others paid tuition, we need only to recall the fact that, today, in New York and several other States, text-books are provided for all unable to buy them, to perceive that discrim-

[4] See Willoughby, "Political Economy of Child Labor," *Publications of American Economic Association*, Vol. v, No. 2, for an interesting discussion of this point.

ination is encouraged, to the advantage of the poor.[5] In all attempts to enforce compulsory laws, the poverty of families is found to be a practical difficulty. In a number of States this is made an excuse for non-attendance, but obviously this course offers no solution, but only an evasion of the real problem. The duty of the state to stand *in loco parentis* has not been fully recognized in all quarters, but the advocates of compulsion have not been wanting in quick apprehension of the logic of their position. It is absurd for the state to undertake the education of all its children, unless it stands ready at the same time to receive and care for the needy among them. To exempt such from the operation of the law is not a kindness, but an act of injustice. The requirement of school attendance, if it has any justification at all, must be held to have been framed, not primarily as a restriction on the liberty of children, but as a means to promote their well-being and, thereby, to help secure the greatest good to the greatest number. This end is wholly lost to view when the state passively permits poverty to remain a bar to education. Ignorance can only be regarded as a foe alike to the child and to the state, and it is no less a foe when aided, as it often is, by conditions for which the child himself is not responsible, and which the state alone has power to remove.

But to what extent shall the child so circumstanced receive public aid? Until recently it was thought that the supplying of free text-books was all that could reasonably be expected, but now Ohio and Colorado have undertaken to provide clothing for all children of school age whose parents are unable to clothe them. There can be little question that other States will soon be brought face to face with the same problem. When the state has the simple alternative presented of permitting the child to grow up in ignorance and thus become, in a greater or less degree, a public burden, or of aiding it by public bounty, for a limited period, to become an

[5] In several States all children, rich and poor alike, are provided with text-books at public expense, but allusion is here made only to those where such provision is conditioned on need.

active, self-supporting member of the body politic, the socialistic bugbear has few terrors for the "plain people" who pay the taxes in this country. And yet, it is quite evident that, unless great caution is used, such a policy may be perverted into a form of public charity which would have anything but a beneficial effect on its recipients or on the community. If not wisely directed, it may lead to improvidence of a very dangerous type. It affects those children who are situated just on the border line of pauperism. Any course that would tend to force them within that line is surely to be avoided. Such provisions as those now in force in Ohio and Colorado demand the utmost vigilance on the part of the officials charged with their enforcement. Time alone can determine the wisdom of such legislation as applied to American conditions, but, at present, the question is being asked here and there over the country: "Is there any escape from it?"

Of late, however, the most violent controversies have not been over the state's right to insist on the schooling of children, or its duty to protect the helpless, but rather as to how far the state's authority shall be exerted in fixing the standards and regulating the methods of non-public instruction. What is known as the "parochial school question" includes two separate and distinct issues. The one lies between those who believe that public funds should be appropriated to religious establishments for educational purposes and those who contend that all instruction at public expense should be non-sectarian. Again, there is one party which asserts that the state must exercise supervision over private schools, at least to the extent of requiring their standards to be the same as those of the public schools, and a host of supporters of the church schools rise in indignation at this invasion of their assumed rights. Here is another issue, and at present it is a very lively one. Should Archbishop Ireland's plan[6] be generally adopted, and prove practicable, the parochial schools would become public, and be subject to the same supervision to which all public schools are subject. The administration of compulsory edu-

[6] EDUCATIONAL REVIEW, III: 462.

cation laws would thus become greatly simplified; for there would be but one school system in each community, the details of which could be definitely prescribed and understood, so that attendance for a certain number of weeks in each year would fully satisfy the requirements of the law. Under existing conditions there is much difficulty in enforcing compulsion in places where parochial and public schools occupy the same field. Very few attempts have been made to bring parochial schools under state inspection. The Ohio compulsory law requires every parish school to furnish the names, ages, and places of residence of its pupils. This is to enable the authorities to know what children are complying with the law. The head of a Toledo school of this character refused to give the information sought, on the ground that the law was unconstitutional, in that it interfered with the rights of parents to educate their children according to the dictates of their own consciences. The Ohio supreme court has decided that the provision in question was not unconstitutional, but that the state has a right to compel the attendance of children at school.[1] The law does not attempt to restrict this attendance to the public schools, nor does it include any particular class of schools. Therefore it does not interfere with rights of conscience. This Toledo case was argued and decided on broad constitutional grounds. Perhaps no decision more important to the future of all compulsory education legislation in this country has ever been rendered by an American court. The nature of the contention only makes more evident the intimate relation existing between the general question of compulsion and that of state inspection of public schools.

The most familiar instance of recent discussion of this latter question in its various phases is the political agitation carried on in Wisconsin and Illinois in 1890. Ostensibly the sole issue in that contest was the requirement that English be used as the medium of instruction in elementary branches in all schools, but large numbers of Catholics and Lutherans were induced to believe that insistence on that requirement was in

[1] *Weekly Law Bulletin and Ohio Law Journal*, XXVII: 313.

effect a covert attack on the whole system of parochial schools. The most distinguished exponent of the opposition to the "Bennett law" in Wisconsin, Senator Vilas, seems to contend[8] that the victory of the Democrats in that State, in the elections of 1890, established once for all the principle of absolute non-interference by public authority in any and every form of private instruction. The state may not ask what is taught in the private schools, nor how much instruction is given in any subject, nor whether the teachers are qualified to give instruction. The inevitable conclusion from the Senator's reasoning is that the state has no right to demand of any parent that his children be educated at all; for of what value is the parent's answer that his children are in private schools, if the state be forbidden to ascertain through its authority what is taught in those schools, or whether anything is taught in them? Mere attendance, in itself, is of no importance to the state. The Senator's argument, therefore, seems to overthrow every form of compulsion, and yet the first action of the last Wisconsin legislature, after the repeal of the obnoxious law of 1889, was the passage of a law, similar to those in force in more than a score of other States, requiring attendance for a fixed period in each year, and imposing a penalty on the parents for non-compliance. The truth is that compulsory education in this country must stand or fall with private school inspection. Massachusetts, Connecticut, and Rhode Island have clearly recognized this truth, and provisions practically identical with the requirements of the "Bennett law" had long been in force in each of those States.

DOES COMPULSION COMPEL?

The accompanying table shows in detail the more important provisions of all the compulsory laws now in force in the United States. Statistics of attendance in the different States are practically valueless as showing the effect of these laws. As the United States Commissioner has pointed out in his last report, the proportion of children of school age affected by these

[8] *Forum*, October, 1891.

laws is small, and the variations in school age and other particulars from State to State render an equable comparison between a State with a compulsory law and one without it, entirely impossible. For information as to what is actually accomplished by compulsory legislation, we are compelled to depend on the record of cases dealt with, supplemented by statements of school officers. The indirect moral effect of such laws, of course, cannot be ascertained through any system of statistics. The most important and useful information has been furnished by the annual reports of the school superintendents of the cities of Boston and Brooklyn. Superintendent Seaver of Boston has made the following statement as to the general result of an investigation conducted with great care and covering a period of six years: "Of 50,000 children in Boston to whom the compulsory laws apply, the number found inexcusably absent from school during any one year is between 500 and 600, or a trifle over one per cent. Also, it is true that more than half of this unexcused absence occurs among children already fourteen years old; that is, among children just approaching the time of exemption from the compulsory law. Again, more than one-half of the remaining unexcused absences occurs among children already thirteen years old. Thus it appears that school attendance is well-nigh perfect among the younger children; that is, among those from eight to twelve years of age, both ages included."[9]

The last Brooklyn school report shows that during 1891 the attendance officers made 36,826 visits, investigated 6324 cases, and reinvestigated 3111 cases. It was found that 2341 children were kept at home by their parents, 1630 by sickness, and 468 by poverty. Of the truants and non-attendants, 3518 were placed in school, and 273 in special attendance school and truant home. It was found that 36 children were employed, in violation of the compulsory law, and they were placed in school. The recent experience of Brooklyn seems to demonstrate that much can be accomplished by a vigorous city school administration, even under a defective law.

[9] *Proceedings of Department of Superintendence*, Philadelphia meeting, 1891.

LAWS RELATING TO SCHOOL ATTENDANCE IN THE UNITED STATES.

Abstracts of most of the laws are published in the report of U. S. Commissioner of Education for 1888–89.

States and Territories.	Compulsory Age.	Amount of Required Attendance in Each Year.	Officers Charged with Enforcement of Law.	Penalty on Parents or Guardians.	Custody of Truants.	Provision for Poor Children.	Under what Age is Employment during School Hours Absolutely Forbidden?	Between what Ages is Schooling Required Preliminary to Employment?	Amount of such Schooling.	Requirements of Non-public Schools.
California.....	8–14	Two-thirds of school term.	Clerk of board of education or district trustees.	Fine of not more than $20 and costs for first offense, and $20 to $50 and costs for each subsequent offense.						
Colorado.....	8–14	12 weeks.	Any school director.	Fine of $5 to $25 each offense.		Clothing.		Under 14	12 weeks each year.	"Competent instructors."
Connecticut ..	8–16	While sch'ls are in session	Truant officers.	Fine of $5 for each week's failure to comply with law.	Institutions of instruction or correction, or State reform school.		13	13–14	12 weeks, preceding year.	Hours, terms, and studies to be same as in public schools and teaching in English language.
Dist. of Columbia..... ...	6–14	12 weeks.		Fine of $20.						
Idaho	8–14	12 weeks.	School trustees.	Fine of $5 to $25 for first, and $10 to $50 for each subsequent offense.		Free textbooks.				
Illinois.....	7–14	16 weeks.	Truant officers appointed by boards of education and school directors.	Fine of $1 to $20.	To be returned to the proper school.					Must teach *in English language* reading, writing, arithmetic, U. S. history, and geography.
Kansas	8–14	12 weeks.	School directors and presidents of boards of education.	Fine of $5 to $10 for first, and $10 to $20 for each subsequent offense.		Excused from attendance.				"Competent instructors."
Maine.....	8–15	16 weeks.	Truant officers.	Fine of not more than $25.	State reform school.		12	Under 15	16 weeks, preceding year.	
Massachusetts.	8–14[1]	30 weeks if schools are kept, otherwise 20.	Truant officers and school committees.	Fine of not more than $20.	"Institutions of instruction" and county truant schools.		13	13–16	20 weeks, preceding year.	Teaching must be in English language, and equal in thoroughness and efficiency to that of public schools.
[illegible]	8–14	16 weeks.	[illegible]	[illegible] first, and $10 to $20 for each subsequent offense.	[illegible]	Free textbooks.	[illegible]			Must teach such
New Hampshire	8–14	12 weeks.	School committees and	Fine of not more than $10 for first, and $20 for each	State reform				For children under 16, 12 weeks; under 14, 6 months.	

Massachusetts.	8–14	20 weeks, unless kept, otherwise 20.	School committees.	Fine of not more than $20.		Free text-books.				
[illegible]	8–14	16 weeks.	[illegible]	Fine of not more than $5 for first, and $10 for each subsequent offense.						
New Hampshire	8–14	12 weeks.	School committees and boards of education.	Fine of not more than $10 for first, and $20 for each subsequent offense.	State reform schools.		13	13–16	For children under 16, 12 weeks; under 14, 6 months, or whole time school was kept; under 12, whole time kept.	
New Jersey...	7–12	20 weeks.	Police and constables.	Fine of not less than $10 for first, and not more than $25 for each subsequent offense, or imprisonment 1 to 3 months	Juvenile reformatories.		12 boy, 14 girl.	Under 15	12 weeks, preceding year.	
New Mexico....	?	3 months.	School directors.	Fine of $1 to $25, or imprisonment 10 days in county jail.		Free text-books.				
New York	8–14	14 weeks.	Trustees of school districts, presidents of union schools, or officers designated by boards of education.	Fine of $1 for first offense, and after that $5 for each week's failure.	Institutions designated by school officers.	Free text-books.	13	13–14	14 weeks, preceding year.	Must teach spelling, reading, writing, geography, English grammar, and arithmetic.
North Dakota..	8–14	12 weeks.	Presidents of school boards and boards of education.	Fine of $5 to $20 for first, and $10 to $50 for each subsequent offense.				8–14	12 weeks, preceding year.	Must teach branches usually taught in public schools.
Ohio....	8–14[2]	20 weeks in cities, 16 in country districts.	Truant officers.	Fine of $5 to $20.	Juvenile reformatories.	Free text-books and clothing.	12	Under 14	20 weeks in cities, 16 in country districts.	
Oregon....	8–14	12 weeks.	Directors and clerk of school districts.	Fine of $5 to $25 for first, and $25 to $50 for each subsequent offense.						Must teach "such branches as are usually taught in primary schools."
Rhode Island...	7–15	12 weeks.	Truant officers appointed by town or city government.	Fine of not more than $20.	Confinement, discipline, and instruction.		10	10–15	12 weeks, preceding year.	Teaching must be in English language.
South Dakota ..	8–14	12 weeks.	Presidents of school boards.	Fine of $10 to $20.				8–14	12 weeks, in same year.	
Utah..	10–14	16 weeks.	School trustees and presidents of boards of education to inquire into cases of neglect of duty.	Fine of not more than $10 for first, and $30 for each subsequent offense.						
Vermont.	8–14	20 weeks.					10	10–14	20 weeks, preceding year.	
Washington ...	8–15	3 months.		Fine of $10 to $25.						
Wisconsin.....	7–13	12 weeks.	School directors, presidents of boards of education, or truant officers appointed by such boards	Fine of $3 to $20.	Schools designated by parents or guardians.		12			
Wyoming.....	7–16	3 months.	County superintendents of schools.	Fine of not more than $25 for each offense.						

[1] 8–15 in cities and towns where opportunity is given for industrial education.

[2] 8–16 when not employed.

But what shall be said of the rest of the country? In New York State, outside of the great cities, practically nothing has been done to make compulsion effective. In Massachusetts, Rhode Island, and Connecticut the towns and villages have been brought under the operation of the law to a very considerable extent. In Ohio, encouraging progress is being made under the law of 1889. Here and there through the country are isolated instances of enforcement, but for the most part, in more than a score of States, these laws have apparently not only failed to affect school attendance to any appreciable degree, but have tended by their very inefficiency to weaken the public school system itself in public confidence. To what shall we ascribe the cause of this general failure? It was not that compulsory education was a foreign innovation, ill-adapted to American conditions. It is true that foreign models were studied in the drafting of our State laws, but the principle itself, as has been shown in the preceding papers of this series, had a very respectable American lineage. If it was un-American, it is difficult to see what feature of our modern school system is not open to the same charge. It must be admitted that too many States have tried to deal with this question (as with others) without reference to the state of public sentiment, and in this country such a course is always fatal to the success of any movement. In many localities, doubtless, compulsion is at present quite impracticable—for instance, in portions of the new West; but practicability has been the last factor to be considered, usually, in framing compulsory legislation. Even in some of our Eastern cities, there is an absurd demand being made in these days for the enforcement of attendance laws which cannot be enforced because the school accommodations are insufficient for the children who apply for admittance. But in country districts, in States where ample school facilities are provided, difficulties have not been wanting. It has been urged that a more centralized system is needed, placing the responsibility for enforcing the laws on State officers, but in Connecticut, where centralization has all along been the order (and with apparently successful results),

it is still acknowledged that without the co-operation of local authority little can be done; and this co-operation is sought by compelling the towns and villages to appoint truant officers and establish truancy regulations, on penalty of forfeiting a portion of their respective shares in the school fund.

The danger of an illiterate population of foreign birth is probably not everywhere so great as Rhode Island's experience would indicate. Recent investigations in New York City among the children of the tenement districts are rather encouraging than otherwise.[10] They seem to show that a very large proportion of the New York children of foreign parentage are not only willing but eager to receive instruction. The chief difficulty seems to lie in the disgracefully inadequate facilities afforded.

Conclusions should not be hastily drawn from an experience so varied as has been that of the twenty-eight States and territories which have made compulsory education a part of their respective school codes. It has been the aim of this series of articles to present both facts and theories, but to do this without regard to any preconceived notions of the issues involved. American conditions only have been considered, as it was believed that a study of them would be of more profit than any investigation into foreign methods or systems. Unsatisfactory and even discouraging as the result of this study could not fail to be, it still remains apparent that by persistent and intelligent effort much may be done to remedy the evils of non-attendance and truancy which exist to-day in so many American communities. It has also been shown that mere legislation is not the end of the state's duty in the matter, but only the beginning, and that vigorous official administration is essential. Such administration, to be effective, must of necessity be expensive. No State should enter on a compulsory policy without counting the cost, but no State should avoid such a policy *because* of the cost.

WILLIAM B. SHAW

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ALBANY, N. Y.

[10] J. A. Riis, "Children of the Poor," *Scribner's Magazine*, May, 1892.

IV

RESULTS UNDER AN ELECTIVE SYSTEM, (II)

REQUIRED COURSES

Another fruitful comparison of results is that which concerns the required subjects.

As mentioned elsewhere, the regulations provide that every candidate for a degree shall have had one year each of English literature, rhetoric, science, and mathematics, and two years of language other than the vernacular. From the accompanying table it appears that, excluding successively the special students in each class, there was an average remainder of 160 students, three-fourths (seventy-six per cent.) of whom elected of these required subjects more than the minimum prescribed.

TABLE J.—WORK IN REQUIRED SUBJECTS.

Number.	*Required Subjects.*	*Number of Cases.*	*Specialists.*	*Remainder.*	*Number who took more than required.*	*Per Cent.*
1	English—1 year.....	192	18	174	128	74
2	Foreign Languages—2 years.....	192	69	123	70	57
3	Science—1 year.....	192	32	160	133	64
4	Mathematics—1 year.....	192	8	184	152	83

Of the numbers above (marked "remainder" in the table) forty-six took the minimum only of prescribed English; fifty-three the minimum amount of foreign languages; twenty-seven of sciences; and thirty-two of mathematics. These are out of a total of 192 students and indicate an evident selection of studies, not because of compulsion, but through personal motives.

Further statistics show that for one-half of them this excess was for one year or more. That is, excluding specialists, one-

half the remainder took two years of English, science, and mathematics, each, when one only is required, and nearly four years of language instead of two. In no general division of the course is it clear, or even suggested, that the number or distribution of elected subjects, or courses, was measured by the minimum requirements. Whatever other influences operated to determine the individual courses, "prescription" seems not to have been needed for more than a small minority of the students. Indeed, this fact appears more strongly when it is shown, as in the following table, that, excluding the sixty-five special students, from eighty to one hundred per cent. of the remainder elected one year or more of the humanities, none of which are on the required list:

TABLE K.—NUMBER ELECTING WORK IN THE HUMANITIES.

Number.	*Subjects.*	*Graduates.*	*Taking one year or more of humanities.*	*Per Cnt.*
1	In English	18	14	78
2	In Ancient Languages	37	31	84
3	In Modern Foreign Languages	32	26	81
4	In Science	32	25	78
5	In Mathematics	8	8	100
	Total	127	104	82

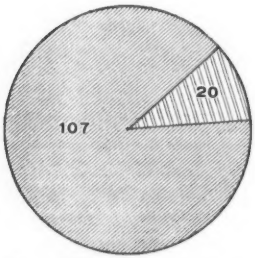
Obviously, under these conditions—and there is nothing in the present collection of statistics to show that the case would be materially different for the so-called "required subjects"—there is no need to explicitly set off history or its allied branches as "necessary to a liberal education," and require everyone to take a term or a year of this group, however desirable such knowledge may be for a free, democratic people.

The whole history of the experiment in Indiana University goes to show that what is voluntarily given of effort or patronage is more fruitful than credit sought under stress.

And the historical do not appear to have suffered neglect alongside of the studies "prescribed."

POSSIBLE OBJECTIONABLE TENDENCIES

It will, perhaps, be admitted, however, that, in the aggregate, the balance of the four lines may be fairly preserved, and yet individual cases reveal distortions and disproportions that would vitiate the whole argument, and condemn the policy.



GRAPHIC ILLUSTRATIONS OF TABLE K.

Circle = 127.

= 20 = Number who took less than one year of work in the Humanities.

= 107 = Number who took one year or more of work in the Humanities.

65 = Number excluded who took their degrees in these departments.

Let it be conceded at once that it is the individual course by which the working of any system is to be finally approved or condemned. Not all can be perfect; certainly it will not be contended that they were so under the old policies. But the majority must be good. Divergences from the average must be neither too great nor too numerous. The average course may not be an ideal one, but it should be an approximate standard by which to measure the individual courses. These, in the last analysis, must pass judgment upon both the theory of the courses and their administration. What *are* the extremes—both high and low? Is the concentration of time and energy, under the stress of personal interest, upon a chosen subject, so intense as to leave inconsiderable place for other fundamental means of training? Does a major course mean an exaggerated devotion to one or a few subjects, and a minimum attention to each of the remaining many? Or, what would be equally vicious, may the averages discovered coexist with absolute neglect of one or other of the great groups of knowledge, of experiment, and discovery, making up the aggregate course?

In any sociological study, it is quite as helpful to know the exceptional cases and the conditions of their development; to have discovered the law of their projection, or the presence of new factors whose influence may become general, as to have mapped every normal group of phenomena, knowing them to be normal.

What are the distortions, then, under the elective system, and what are their conditions?

FORMS OF DEFECTIVE COURSES

These defective courses, as may be inferred from the previous study and from the preceding paragraph, are of two kinds: 1. Those that are distorted by an abnormal emphasis put upon a preferred line of study, one-sided courses, without balance, with narrowing tendencies, and so more or less whimsical and irrational. 2. Scattering courses, or those in which all the privileges of option are employed to increase the number of subjects; courses in which many-sided information is made the end; otherwise aimless courses, superficial and disintegrating.

Of the two it would be difficult to decide which is least objectionable. Considered simply as courses, the immediate ill-effects of the latter would perhaps be more serious. Continuance in the former would be more difficult of correction. Smattering of knowledge may lend a certain individual satisfaction; the narrower course contributes more to society. A rational system must provide defense against both. In this, I take it, lies the strength of the traditional classical training. As shown by figures elsewhere presented, the proportions of the four groups did not differ greatly from those of to-day; and in the limited number of subjects offered to students there was positive protection against dissipation. Indeed, in the management of the earlier schools, and even the recent ones patterned after them, there is much to commend. For a certain portion of their students the single course offered was perchance just suited. It was integrated and serious. Recommended by long usage and contemporary learning, it was

accepted by a larger proportion of would-be students than it might be to-day. It was not cursed by a bald utilitarianism. What made the old course good for the few, it is contended should be made a principle fitting some course to each of the many.

ONE-SIDED COURSES

By one-sided courses are here meant those that, taking the minimum of studies prescribed as common to all, are chiefly made up of some one more or less narrow line of studies or training to the neglect of most others. Such course is unbalanced in that not all, but most of it is given over to a relatively small group of phenomena, while ignoring its universal relation, or its connection with other phenomena. Obviously, however, such college training is a variable quantity. Its distortion consists less in what is included of excess, than the much or the many things omitted. It is one-sided, and so abnormal, chiefly because of what it is not or does not have. Moreover, the distortion varies with the subject. In a general average showing 47 per cent. of language, 24 per cent. of the humanities, 18 per cent. of science, and 11 per cent. of mathematics, 50 to 60 per cent. would not, perhaps, be regarded as unreasonable in language, though excessive for either of the other groups.

Table L presents a list of thirteen subjects, with the number of courses in each, showing a proportion above a specified per cent. assumed to be excessive. Obviously both the table and the conclusions are only tentative and suggestive. The twelve courses noted in the first column under science, and the thirty-four under language, are introduced as possible distortions and explained elsewhere in the text. Concerning all other cases, the numbers in a given column include those which follow relating to the same subject. Those showing less than sixty per cent. of language are not mentioned, as being in no sense out of proportion: so of science and the humanities falling below thirty-five per cent. The principal apparent irregularities, it will be noticed, are among the courses having more

than seventy per cent. of language, and more than thirty-five of science and the humanities each.

TABLE L—ONE-SIDED COURSES

No.	*Subjects.*	35–45 *per cent.*	*Above 45 per cent.*	*Above 50 per cent.*	*Above 55 per cent.*	60–70 *per cent.*	*Above 70 per cent.*	*Above 75 per cent.*
1	English						5	1
2	Greek						6	2
3	Latin						1	
4	German						6	1
5	French						2	1
	TOTAL, LANGUAGE					34	20	5
6	Botany		1			1		
7	Zoölogy		4		2			
8	Chemistry		3		1			
	TOTAL, SCIENCE	12	8		3	1		
9	History		5	1				
10	Sociology		5	1	2			
11	Philosophy		2	2				
12	Pedagogics		1					
	TOTAL, HUMANITIES		13	4	2			
13	Mathematics							

The tables will serve to present the facts, and others must be left to make their own inferences. All the cases have been included that were thought in any view, however extreme, to fall within the class of distorted courses.

(1) IN LANGUAGE

Of the thirty-four included as making sixty to seventy per cent. of their courses language, all were specialists in some language. Of the remaining twenty, but five show more than three-fourths of the total course taken from this class. Of these, two, one in German and the other in French, are each credited with something more than the required science and mathematics, with an equal amount of history or related subjects. Indeed, with the exception of cases 2 and 3 in the table (M) the last statement is true of all of them. Nine took about the minimum only, of science; eight, the required mathematics. Three others approximated the average in

mathematics (double that prescribed), and two a like portion of science. Ten are credited with at least one year of history each, and two an amount equal to the general average of the group.

Of the five courses mentioned above, that in English (3 in the table), not only presents an excess of language (77.8) but has credit for no science whatever. Although the major subject was English, fifty per cent. at least, more time was given to German and French, each. No Greek appears. The student, in this instance, has been, since his graduation in 1888, an instructor in English, in an Eastern institution, and has recently won distinction by a literary composition of real merit. The last two of the five courses noted were in Greek. One (5 in the table) had nearly two years of science, but a minimum of mathematics. In the other (4) along with the minimum of science study, dignified, however, by concentration of time and attention upon physics alone, there was an excess of mathematics. In the four years, there was nothing of the humanities. Eighty per cent. of the total course was language; two-fifths comprised in the major study (Greek) and one-fourth in German. This, except that the disproportion among the groups was greater, it will, I have no doubt be conceded, was a less objectionable course than the others, inasmuch as what was here lost in the neglect of the historico-ethical subjects, might easily, and probably was made up in part at least, through the very extended study of language. Of the remaining fifteen courses, six belong to the same category. The excess of language was subtracted from history and related subjects whence it could most easily be taken, and most safely.

This leaves nine top-heavy courses in language, whose defect lies in the fact that the enrichment of the specialty was chiefly at the expense of science.

These appear as cases 5 to 13 in the accompanying table, and will be found to be monotonously alike.

TABLE M—FOURTEEN ONE-SIDED COURSES IN LANGUAGE

Number.	*Case.*	*Specialty.*	*Per Cent.*	*Other Languages.*	*Science.*	*Humanities.*	*Mathematics.*	*Terms.*		*Year.*
1	130	German..	32.6	42.8	5.5	8.2	10.9	37		1889
2	78	French	12.6	64.2	8	6.5	8.7	46	English, 17.4 German, 23.6	1887
3	71	English.....	16.6	61.2		13.9	8.3	36	German, 25 French, 25.1	1888
4	201	Greek.....	32.4	48.2	6		13.4	36	German, 21	1891
5	231	Greek....	29.2	46.7	12.1	4.9	7.1	41		1892
6	90	English.....	35.9	35.8	7.8	12.8	7.7	39		1888
7	208	"	37.9	35.3	8.6	8	10.2	37		1891
8	99	German.....	30	40	12.5	10	7.5	40		1888
9	103	"	30.5	41.5	10.2	10.2	7.6	39		1888
10	212	"	30.7	44.1	8.4	8.4	8.4	36		1891
11	126	Greek...	29.4	41.2	11.8	10.2	7.4	40		1889
12	146	"	32.4	40.5	8.1	10.9	8.1	36		1889
13	207	"	37.5	35.4	9.1	10.5	7.5	39		1891
14	216	"	29.1	41.7	7.9	13.4	9	37		1891
			29.8	44	8	9.5	8.7	38		

(2) IN SCIENCE

Having in mind that the amount of science in the average course is less than twenty per cent., there is mention made in the table of a class of eleven whose records show an average of from thirty-five to forty-five per cent. All of these were specialists in this group but one. Notwithstanding this major course was a language, the proportion of science was about double the general average. The entire course was weak chiefly in mathematics and the humanities; yet but two subjects of the latter (history and economics) were taken for less than two terms each. (The subject of this course is a young man who has since graduated from the Michigan University Medical School.)

Of the eight whose science constituted forty-five per cent. or more of their courses, two are credited with a deficiency among historical subjects, though one had two terms of history and the other three terms of philosophy. The remainder all show a greater or less deficiency in language (the per cent.

TABLE N—NINE ONE-SIDED SCIENCE COURSES

		Spec.	*Per Cent.*	*Other Sciences.*	*Lang.*	*Human.*	*Math.*	*Terms.*	*Year.*
1	113	Eng.	19	37.3	34.2	3.8	5.7	53	1888
2	166	Zoöl.	22.8	25.4	35.6	5.5	10.7	37	1890
3	128	Chem.	28	22.3	35.9	5.5	8.3	36	1889
4	122	Zoöl.	30.9	16	29.4	14.2	9.5	42	1889
5	80	Chem.	30	25.6	27.8	8.3	8.3	36	1888
6	119	Zoöl.	43.6	19.2	19.9	9.8	7.5	41	1889
7	147	Bot.	18.5	41.5	30.1	9.4	10.5	38	1890
8	85	Chem.	23.3	22.2	20.5	12.5	21.5	40	1888
9	145	Zoöl.	17	48.9	24.3		9.8	59	1889
	GENL. AVER.		25.9	28.7	28.6	7.7	10.2	42	

varying from twenty to thirty, or half the average), and four of them a meagerness in the humanities as well. One of these (the seventh in the table) specialized in botany but spent even more time upon zoölogy; was weak in language (30), yet had twice as much of it as of his specialty. Another (8) had a minimum of language, but was strong in mathematics, giving to this but a fraction less time than to his specialty—chemistry. The sixth case tabulated is that of a young man, already known before his graduation as an entomologist of repute, and who came to an untimely death while on a scientific expedition through Florida. This course was seriously lacking in language-culture, though it represents five distinct languages, and so exhibits both kinds of distortion. The one remaining case presents a major course in zoölogy. There is the full amount of mathematics, and about the average of language; though of both the latter and physics there was each more than of the major subject. No part of the entire course was taken from the class of the humanities. This young man, graduating in 1889, is now and has been for two years connected with the U. S. Fish Commission at Washington, D. C.

(3) IN THE HUMANITIES

From the table (L) it will appear that there are thirteen courses estimated as, perhaps, distorted because of an irrational centering upon the humanities. A little more than half of each course was made up from this group. Eight show a

marked deficiency in language, though in every instance the aggregate of the humanities and language exceeds the combined proportions of the two in the total list. Four of the remaining courses show from one-third to one-half of the general average of science, and give one-third of each to language. That is, these four each took the required science, a fraction more than three years of language, and double the mathematics prescribed. Not a bad showing, after all concessions are made.

TABLE O—FIVE ONE-SIDED COURSES IN THE HUMANITIES

		Specialty.	*Per Cent.*	*Other Humanities.*	*Languages.*	*Science.*	*Mathematics.*	*Terms.*	*Year.*
1	200.....	Hist.	26	24.4	30.1	7.4	12.1	37	1891
2	158.....	Hist.	24	24.1	32.4	8.1	11.4	37	1890
3	179.....	Hist.	23.3	25	31.5	7.7	12	38	1891
4	189.....	Hist.	24.4	24.5	34.2	8.2	8.2	36	1891
5	121.....	Soc.	18	30.9	43		8.1	37	1889
	GENERAL AVERAGE..		23.1	25.8	32.2	6.3	10.4	37	

In the one remaining case the course was specialized in sociology. It was slightly deficient in mathematics, included seventeen terms of language (sixty per cent. of it in the ancient classics) but double the average of the humanities, about equally distributed to history, sociology, and philosophy. It included no science. The subject of this course graduated in 1889 and in that year took the first prize offered by the American Protective Tariff League to college students for the best essay on economic questions.

(4) IN MATHEMATICS

Of the nine who are charged with an excess in mathematics (twenty-eight per cent. or more) seven show an average of their major subject exceeding one-third of their respective courses. In five of these only is there apparent any considerable lack: two (3 and 4 in the table) being low in science; two (6 and 7 in the table) low in the humanities; and one (8) low in

language. In each case the amount taken was one-half or less of the general average.

TABLE P—ONE-SIDED COURSES IN MATHEMATICS

No.	*Courses.*	*Spec.*	*Per Cent.*	*Lang.*	*Science.*	*Math.*	*Humanities.*
1	Case 219...	Phys.	18.1	31.9	9.7	28	12.3
2	Case 153...	Math.	32.4	29.4	19.4		18.8
3	Case 223...	Math.	33.5	34.4	8.8		23.3
4	Case 123....	Math.	34.2	45.7	7.5		12.6
5	Case 170 ..	Math.	35	32.5	17.5		15
6	Case 161....	Math.	36.1	30.6	22.2		11.1
7	Case 227....	Phys.	33	30.8		36.2	
8	Case 79.....	Math.	37.3	19.7	14.7		28.4
9	Case 186....	Math.	38.9	32.5	14.3		14.3
	AVERAGES...		33.2	31.9	12.7		15.1

For all nine courses the proportion of language was nearly thirty-two per cent.; and in but two instances did it fall below thirty per cent. In one of the five mentioned above (8) it constituted less than one-fifth of the course. The amount of science in five of the nine courses tabulated is above the average. In two the major subject was physics, though in both the proportion of mathematics was more than twice the general average, and greater even than that of the specialty. One of these last (7) was seven-tenths science and mathematics combined, and had one year more of language than is prescribed, but no work in the humanities. The only science taken was that of the major subject—physics. The entire course was made up from five departments—three languages, (English, Greek, and German), one science, and mathematics.

SCATTERING COURSES

What constitutes a loose, or diffuse, or scattering course, is even less easily determined than to fix the conditions of a one-sided course.

If the purpose of the college as to science is realized in fixing the habits called scientific, and not in collecting mere information; and as to language, if the ideal result is the culture and mastery that come from abundant and well-directed study of language, rather than the possession of many lan-

guages; then, to have spent the time at command upon fewer sciences or fewer languages would seem to measure the ideal of liberal culture as to these subjects. To attempt more may be only dissipation. The effort would be wasteful as opposing concentration of resources, which is the heart of efficiency. What are the facts as to the tendency in the present policy? Does individual choice lead to scrappy courses and wasteful training? Are short and partial courses multiplied as the system develops?

TABLE R—NUMBER OF DIFFERENT LANGUAGES AND SCIENCES TAKEN

Number.	*Subjects.*	*Five Sciences.*	*Four Sciences.*	*Three Sciences.*	*Two Sciences.*	*One Science.*	*Five Languages.*	*Four Languages.*	*Three Languages.*	*Two Languages.*
1	English	2	8	5	3	2		12	6	
2	Ancient Classics	4	4	13	15	5	10	18	9	
3	Modern Languages	3	7	17	6	4		26	6	
4	Biological Sciences	10	3	1			1	6	4	2
5	Physical Sciences	9	4	4	2	1		5	11	2
6	History and Economics	6	12	11	7	2	4	11	27	6
7	Philosophy	1	3	8	5		1	9	9	
8	Mathematics		3	2	1	1	1	2	2	2
	TOTALS	34	42	53	39	15	17	89	74	12

Considering the organization as presenting fifteen fairly distinct departments, the average number of these "touched" by the 192 students is a fraction less than eleven. One-third of the entire number of courses was made up from ten departments or fewer; twenty only reached more than a dozen departments.

The table presents the distribution of the languages and the sciences, with a classification showing how many of each were taken in each course. From which it appears that out of the total number of cases, 17 included five languages; 89, four languages; 74, three languages; and 12 but two each.

Similarly, 34 of the number took work in five different sciences; 42, in four sciences; 53, in three; 39, in two; and 15 in but one each.

Of these, it is fair to say that, for undergraduate students, only those could reasonably be called scattering courses which are enumerated in the first and sixth columns. That for the general purposes of a college education, a course with not more than three sciences well followed would be greatly better is not likely to be seriously questioned. But the 42 who took four sciences, including three terms of some one, can scarcely be charged with loose or purposeless courses. Similarly of the languages. With English required of all and two years of language study beside, it is not to be expected that less than four languages would appear in the average courses. From which it results that in the fifty-one courses—thirty-four, each charged with five sciences, and seventeen, each with five languages—must be found, if at all, the scattering courses. Of the thirty-four, nine, or nearly one-third, took but three languages, and bettered their courses by so much concentration; and five of the seventeen are credited with but two sciences each, and correspondingly stronger courses because of this narrower limit in a coördinate branch.

After all this has been considered, however, there remain thirty-five courses, each having four or more languages and four or more sciences. These, something less than one-fifth of all, might have been improved. That is, upon the face of the figures, the showing is against them. But much of the deficiency is more apparent than real. Of the twenty-three remaining, charged with five sciences, each shows an average proportion of science to the total course of eight per cent., or about three terms in the standard course of thirty-six terms. But the average length of course of these twenty-three was nearly forty-five terms; it will thus be seen possible to include in each course all the required and major subjects, and do fairly continuous work on most of the others undertaken. The like facts sustain a similar statement concerning the twelve charged with five languages each. The looseness is, in part at least, nominal.

SUMMARY OF DISTORTED COURSES

Recapitulating, now, the paragraph concerning "distorted courses," it appears that there have been 88 cases investigated as to an undue prominence given to some one subject or study. Fifty-two of these show an excess of language; 19 an excess in science; 11 in the humanities; and 6 in mathematics. Out of this number but 37, or 19 per cent., of the 192 courses, were considered of sufficient importance to be tabulated (14 in language, 9 in science, 5 in history, and 9 in mathematics). Of these, 13 stood "excellent" in their classes throughout the college course, and have, by various sorts of original and valuable services since, justified their training. This leaves 24, or about 12 per cent. of the total number to whose courses serious exception might be taken because of the distortions enumerated.

The proportion of "scattering" courses is even less.

Moreover, the distortions, of whichever sort, are surprisingly impartial as to departments. Of all those mentioned, leaving out the scattering courses (for obvious reasons), not more than seven are found in any one department; these are in mathematics. Six are charged to Greek; four each to English, German, zoölogy, and history; three to chemistry; two to physics; and one each to French, botany, and sociology. Among the four groups of knowledge, also, language furnishes fifteen of these courses; science, ten; mathematics, seven; and the humanities, five.

CONCLUSION

For convenience and definiteness, there are here summarized the principal inferences formulated throughout the discussion:

1. The proportions of the four groups of subjects in the older and more recent courses, respectively, have not been materially changed.

2. The slight modification found involves chiefly the transfer of a certain amount of attention from mathematics to the humanities.

3. The first place among the languages, as indicated by its share in the average course, is now held by German.

4. Greek, however, of all the languages, presents most graduates, and the best integrated courses.

5. The biological sciences still yield first place to those called physical, both in the number electing them as collateral work, and in the proportion of each to the average course.

6. Almost five-sixths of the graduates are credited to the two groups—language and the humanities.

7. The longest and best integrated courses, also, are found among the students of these same classes.

8. Of "required" subjects less than one-fourth of the students left off with the minimum prescribed.

9. Four-fifths also, of the entire number, elected one year or more of work from the humanities, chiefly history and economics, though nothing is required to be taken from the group.

Besides these, there are certain other more general conclusions which seem clear enough, for the most part, to the writer, notwithstanding that this paper, as now presented, offers no facts that appear to lend them positive force. The study has, however, been full of unexpected hints and lessons, and in many respects class-room teaching has taken on a new significance. Without discussion, then, the following propositions are submitted as inferences fairly borne out by the investigation:

1. The principle whose policy is here discussed, and which has been followed for eight years, has improved the student body; by relating the culturing process to a well-defined and "interesting" motive.

2. By so much it has improved teaching, through the attractive force of interested learners.

3. It has rationalized deportment, in that it has dignified the motives of students.

4. It has discovered unexpected ability among students, furnishing, at the same time, opportunity for its encouragement.

5. There is an obvious tendency toward the obliteration of class distinctions, and their accompanying antagonisms.

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V

TEACHING ELEMENTARY PHYSICS

In what I shall say concerning the teaching of physics, I shall draw very largely from my own experience. I shall recommend certain practices because I have tried them and found them good. I shall recommend others, perhaps more numerous, because I have tried the opposite and found them bad.

It is not necessary that the teacher of elementary physics shall have read all the books that are written upon physics. It is not necessary that he shall have pursued his studies very far beyond the scope of his teaching. The essential thing is that he shall have mastered the elementary principles. A student may read many books and take many courses and have a reputation for much learning, and yet be and remain an unsafe and incompetent teacher for young pupils by reason of having an insecure grasp upon such facts and principles as are set forth in any good general treatise upon physics. The teacher who, in this condition, undertakes to conduct a class, is pretty sure to have an unpleasant experience for his first year or two. Time which should be spent in recreation, in sleep, or in meditating upon the best method of presenting matter to his pupils, is spent in accumulating material, and the teacher comes before his class full of newly acquired facts, but dull, heavy, and ineffective, a gun loaded to the muzzle with shot but without sufficient powder to clear the barrel.

When I began my work as a teacher of physics, I was inclined to the opinion that any part of my subject, save possibly the descriptions of apparatus as given in text-books, would, if clearly and forcibly taught, command the respect and even the interest of the ordinary student. This opinion was natural to one who, like myself, had passed through the fixed curriculum of a small college without finding anything abso-

lutely distasteful, that had been presented with reasonable clearness and method. But time has modified somewhat my estimate of the docility of the average youth. I have as much faith as I ever had in his responsiveness to the right stimulus and influence, but I have more respect than I used to have for his discrimination. In these days of many electives, the pupil is encouraged to ask very early in his career, which one of several studies is the more profitable to him, and to govern himself accordingly. And this is as it should be. The student, sixteen or seventeen years of age, has a right to know why he is asked to learn or to do a particular thing. If he cannot be shown that a certain study which he is following is for his advantage, either he has an incompetent teacher or he is following that study too far. If he can see no use in any of his studies, his career as a student should end.

In urging that the use of every study, and every part of every study, should be demonstrable to the student, I am far from maintaining that the usefulness of any acquirement is to be measured solely, or even chiefly, in dollars and cents. The boy must be a very uncommon one, without sense of beauty or sublimity, without admiration for intellectual achievement, without interest for the welfare of coming generations, who cannot be made to feel that the phenomena of physical science, the history of its doctrines, its generalizations, its problems, its prophecies, are of interest for their own sake. The teacher should therefore cultivate a broad view of his subject. If he happens to be, like so many of us, not too generously endowed with imagination, he should seek the society, or read the books, of those to whom nature has been more lavish in this regard. He should read popular lectures and essays like those of Helmholtz, of Tait, and of Tyndall. He may even do well to read, with a large interrogation point at hand, the products of distinctly sensational writers, ardent souls who are not always correct in their principles, but to whom much may be forgiven.

Nevertheless, the purely utilitarian value of the study of physics is very great, and it should be the care of the teacher

to make it as great as possible, consistently with the intellectual development of the student. One of the most distinguished among living mathematicians is said to have named the Theory of Numbers as his favorite branch of mathematics, "because it has never been prostituted to any practical use." He tells of his hunt for an elusive mathematical truth in language as fervid and picturesque as any other man could call to his service in describing the chase of a Rocky Mountain goat; but he is a genius, and the ordinary teacher cannot safely imitate his methods. He is unpractical, but never dull. The ordinary teacher has to guard himself from being unpractical and dull at the same time.

Often a teacher fails to present matters in their due proportions, and sometimes it happens that wholesome, if unpalatable, advice will come from some frank acquaintance in a kindred subject, who knows enough of physics to see what it may do for a student, but not enough to be unduly interested in any one part of it. One must not let his pride, as a specialist, prevent his taking a useful hint, from whatever source it comes. The teacher of a certain type is not always able to let go of a subject when he knows that he had better do so. He undertakes to prepare some difficult experiment for an impending lecture, and his first attempt fails. He tries again and fails. There is yet time to prepare something else, this particular thing is not very important, but the difficulty of it piques him. He tries to think of something else, and presently finds himself back with the one thing that he cannot make go. He makes one attempt after another, falling at every move into a worse case, till at last he rests, like Br'er Rabbit in the embrace of the Tar Baby, in a state of desperation and helplessness, when his class in the capacity of Br'er Wolf appears on the scene. The teacher will presently come to see that what is hardest for himself is not necessarily best for his class, even if he can successfully meet its difficulties. Sometimes a teacher loses his hold upon a class by failure to ascertain what the pupils already know. Boys nowadays pick up many facts from popular

books, from the street, from toy shops, and it is no uncommon thing for a boy thus started to be, in many particulars, some years in advance of his text-book, not an unheard of thing for him to know more about certain matters treated in the class than the teacher himself. The difficulty of suiting his instruction to the previous training of the pupils is often a serious one for a college teacher.

The teacher should consider carefully how much direct help he will give to his pupils. Too much is perhaps as bad as too little. It must be remembered that the student grows in strength by doing, not by hearing or seeing. Hard work is necessary for real discipline, but there should be no unnecessary difficulties; let the race-course be made clear and smooth, and then let the runner do his best. The first question is likely to be: Shall I teach solely by text-book and lecture-table experiments, or shall I give to each pupil laboratory work? In answering this question the teacher is likely to be powerfully assisted by the ruling authorities of the institution in which he works, but he may be able to exert a strong influence in the right direction, if he is energetic and has a definite idea of what he would like to do. It may be safely assumed that the teacher, if he is a teacher of physics from choice and not from mere necessity or convenience, will use his influence in favor of the laboratory plan. The main initial difficulties which he will meet are, (1) The cost of a laboratory and its equipment; (2) the difficulty of providing for the work in the school curriculum; (3) the difficulty of finding time for the proper supervision of the laboratory work. The first of these difficulties is not a very serious one. Elementary laboratory appliances are inexpensive in comparison with the old-fashioned lecture-table apparatus. Five hundred dollars judiciously expended will probably equip the laboratory proper of an ordinary school. If the school is small, this estimate may be greatly reduced. If it is very large, the cost will not be proportionally large, for there is a limit to the number of students that one teacher can manage to advantage in simultaneous laboratory work. A squad of twelve beginners in such work

will occupy fully the attention of the teacher for the time being, if he looks after them properly.

The second difficulty is greater. Other subjects have long occupied the school programme and claim vested rights which are not to be lightly interfered with. Persistence and tact on the part of those interested in the physics teaching will be needed in dealing successfully with this particular obstacle. The practical spirit of the time works with them, however, and, if the school is a strong and progressive one, the change will come.

The third difficulty is the most serious of all. If the class is large, the laboratory method requires far more of the teacher's time than the lecture-room method. If the class is small, not more than ten or twelve, the difference is not very great, provided the teacher is not expected to make much apparatus with his own hands. I cannot advise a teacher to undertake laboratory work if he must carry it on, without a teaching assistant, with squads of twenty-five or thirty pupils at a time. This experiment of very large squads has been tried in one or two schools that I know of, and with such results as were to be expected.

While strongly in favor of laboratory work for the whole class, yet I am not one of those who can see no good in the old text-book method of instruction, properly supplemented by lecture-table experiments. It is a great deal better than no instruction, and, in one respect, that of giving a general connected view of the whole range of physics, it is distinctly superior to the laboratory method, as the latter is sometimes practiced. Laboratory work conducted with a mere manual of directions for experiments leaves woeful gaps in the pupil's knowledge. On the other hand, the text-book and lecture-table method used alone gives a comparatively superficial knowledge. The best method is a combination of the two. The student should concentrate his laboratory work upon a few well selected points of attack. These are the battle-fields, and from them the surrounding territory may be swiftly occupied, but occupied it should be. The

geological parties of the Harvard summer schools do not undertake to walk over the whole country. They may explore in detail certain portions of eastern Massachusetts, of the Connecticut Valley, the Hudson Valley, perhaps parts of Pennsylvania, but they would certainly miss the full benefit of their labor if they failed to note the general features of the country between these points.

The young student in laboratory work, and the old one for that matter, is in danger of feeling, when his experiment is finished, his observations arranged, and his result calculated, that he is done with the matter. Unless he is well looked after he will fail to draw the moral from his work. He will fail to note its applications and its connection with other parts of the general subject he is studying. It is, I suspect, a very general experience with teachers to be disappointed with the performance of their first class of laboratory pupils when confronted by written questions which they have not specifically dealt with in their experimental work. And so it happens that some teachers object to having a written test applied to the results of laboratory instruction. Of course the valuable mechanical experience and skill which result from school work cannot be shown upon paper, but the degree of intelligence with which the pupil does his experimental work may be ascertained perfectly well by a written test, and to object to such a test is to take an attitude too much like that of an ordinary handicraftsman, who dismisses any question relating to his business, but not touching points absolutely essential to the mechanical performance of his tasks, with the remark: "You are getting too theoretical for me. I'm practical." That spirit is proper enough for the craftsman. In fact, it is the spirit that prevents him from becoming anything more than a craftsman, but it is not the spirit in which boys should be educated. The teacher must see to it that, between the periods of their active occupation with apparatus, the pupils shall have time to think; and he must see to it that they do think. This he can accomplish only by setting them stated tasks

that will exercise their brains, and bringing them to book on these tasks.

This seems to be the proper place to say, with regard to a notion that has had a certain vogue, that, if the object of a laboratory course is to teach physics, the pupil should not be required to make much of his own apparatus. The student who makes his own apparatus is likely to do nothing else. He will spend weeks of time upon trifles and will finish his course with the skill, the pride, and the intellectual standards of a jack-at-all-trades. I believe that boys should be taught the use of tools, but the physical laboratory is not the place for such teaching. Manual skill is an extremely useful accomplishment, or rather endowment; I devoutly wish I possessed it. But when I see how those who are distinguished for it are tempted to spend their time in the delight of exercising it to the harm of more important interests, I sometimes fall back with a certain comfort upon the remark of a college classmate, "I wouldn't be a good fiddler for a thousand dollars."

It is equally important that the teacher should not have to manufacture much of the apparatus. His time and strength should not be devoted to manual labor which a mechanic could do more rapidly and better.

I find my justification for the added expense and work of the laboratory method in the increased interest and mental activity of the pupils, whereby the teacher becomes a guide and leader rather than a driver; the stronger hold which the student gets upon the fundamental facts and principles of the science from having come into hand-to-hand engagements with them; the consequent greater command of these facts and principles in the emergencies of life, in the continued study of science, in the practice of a learned profession, in commercial ventures, in the common experience of the ordinary householder.

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VI

EDUCATION IN FOREIGN PERIODICALS

Sex in Education

FROM AN ADDRESS BY SIR JAMES CRICHTON BROWNE, M. D., LL. D., F. R. S., REPORTED IN THE "LANCET"

"To catalogue, in the briefest way, the bodily differences between men and women which underlie their intellectual disparities, would exhaust the time at my disposal. They are universal and intimate, and involve every organ and tissue. They extend from cuticular appendages to the marrow of the bones, from the crown of the head—for, according to Broca, the female cranium is less elevated than that of the male—to the sole of the foot—for, according to Delaunay, woman has a plantar arch flatter than that of men, which perhaps accounts for her partiality for high-heeled boots. I shall not attempt such an extensive anatomical survey. My present purpose will be served by directing your attention to certain sexual differences in one bodily organ—the brain, differences which have been greatly lost sight of, which must require further investigation, but which are of peculiar significance in connection with intellectual manifestations.

"And, first, among cerebral differences between the sexes, I would refer to mass and weight, qualities with which one almost insensibly associates power and strength. Now, it is a matter of common observation that women have smaller heads than men, and it is a matter of scientific observation that in all peoples and races, without exception, the absolute weight of the entire brain is on the average greater in men than in women; though, of course, individual women do sometimes possess larger and heavier brains than individual men. But it is also a matter of scientific observation that there is a correlation between brain weight and stature, and, laying hold of this fact, the advocates of women's rights and mights have argued that the deficiency in her brain weight, when compared with that of man, is no more than is to be accounted for by her fewer inches. But this position is quite untenable. I do not know a trustworthy standard of the brain weights of healthy

natives of this country to which to appeal, but I can submit to you a table showing the results of the weighing of the brains of a large number of insane persons, all English, Scotch, or Irish, but mostly English, which in this relation is absolutely reliable. In this table are summed up the brain weights of 1600 persons—945 male and 655 females—ranging from ten to eighty years of age, the weighing of the brain having been in each case conducted by myself or under my own supervision. You will observe that the brains of males exceeded those of females in weight by 127.68 grams (or 4.50 ozs.) on the average; and that, after allowing for differences of stature—taking 5 ft. 7 in. as the average male height, and 5 ft. 2 in. as the average female height—there is still an excess of brain weight of 29.71 grams (or 1.05 ozs.) in favor of the male. This is a very substantial difference, and if we recollect that the brain of the ant—of the mental power of which Sir John Lubbock has

Table I—Brain Weight

	AVERAGE WEIGHT OF BRAIN		AVERAGE HEIGHT		EXCESS OF MALE OVER FEMALE BRAIN WEIGHT		EXCESS OF MALE BRAIN WEIGHT AFTER ALLOWING FOR HEIGHT	
SEXES	GRMS.	OUNCES	METERS	FT. INS.	GRMS.	OUNCES	GRMS.	OUNCES
945 Males	1350.54	47.64	1.702	5 7	127.68	4.50	29.71	1.05
655 Females	1222.86	43.14	1.575	5 2	—	—	—	—

spoken in such complimentary terms, declaring that they differ from those of a man not so much in kind as in degree—is of the size of a pin point, we shall realize that an extra ounce of brain matter within the human cranium may imply an enormous mental difference. But it is certain that the actual difference in brain weight between healthy English men and English women is much more than one ounce. My tables, as I have told you, deal with lunatics dying in asylums, and among them organic diseases of the brain, involving loss of substance, are at least twice as frequent in men as they are in women. Women are oftener attacked by insanity, but men oftener die of it. General paralysis of the insane, atrophy and softening of the brain, senile dementia, and other diseases causing wasting of the convolutions, are far more fatal to men than to women, who, when they die in asylums, succumb most frequently to bodily diseases which do not seriously interfere with the nutrition of the brain. And so it comes about that,

of the brains weighed in the *post-mortem* theater of an asylum, those of men are on the average much more water-logged and reduced below their normal bulk than those of women. The effect of organic diseases and the atrophic changes they induce in lowering, in my tables, what is the normal difference between the male and female brain, may be statistically demonstrated from these tables themselves. It is from thirty to fifty years of age that the mortality from general paralysis which destroys four men to one woman, and from other fatal forms of organic brain disease, preferentially attacking men, except, of course, senile dementia, almost exclusively occurs, and it is in this section of life that the sex difference in brain weight in my tables falls to the lowest point at the very time when, under normal circumstances, it ought to be greatest. The average excess of weight in the male, as compared with the female brain, from thirty to fifty years of age, in my tables, was 123.5 grams, or 4.37 ozs., while from twenty to thirty years, when deaths from organic brain disease are rare, it was 169.9 grams, or 6.01 ozs. All available evidence points to the conclusion that the male brain exceeds the female brain in weight in this country to an even greater degree than has been hitherto supposed. And that the smaller size of the female brain is a fundamental sexual distinction, and is not to be accounted for by the hypothesis that environment, educational advantages, and habits of life, acting through a long series of generations, have stimulated the growth of the cerebrum in one sex more than in the other, is made clear by the fact that the same differences in brain weight between men and women have been found in savage races. And not only is the male brain heavier than that of the female, but it has a wider range of variation in weight. The very big brains and the very small brains are encountered, just as are geniuses and idiots, giants and dwarfs, more frequently among men than among women.

" I have said that an extra ounce of brain matter within the cranium might involve an enormous mental difference. It would do this were it generally and equally distributed, and it would do so in a still more striking manner were it localized in a certain region of the cerebrum; and there are grounds for believing that there is a difference in the balance of parts in the male and female brains respectively, and this difference I adduce as the second sexual distinction between them. Broca,

no mean authority, has declared that the occipital lobes are more voluminous in the female than in the male, and my own observations, published in *Brain* in 1880, confirm, as far as they go, his conclusion, and show that while the frontal lobes are equally developed in both sexes, the parietal lobes, corresponding roughly with the motor area of Ferrier, are larger in the male than in the female, and the occipital lobes, certainly sensory in their functions, are larger in the female than in the male.

"The third brain difference between the sexes to which I would allude is one of convolutial arrangement, which cannot yet be accurately defined, but which the examination of a series of photographs of brains of men and women, which have been stripped of their membranes, pretty clearly reveals. The brains of women, like their bodies generally, are, upon the whole, more symmetrical than those of men. The difference which I have found in the weight of the hemispheres points to this conclusion, for in males the right hemisphere exceeds the left in weight by 3.7 grams, and in females by only 2.1 grams; but pathological considerations as to the regional distribution of wasting in organic diseases forbid me to attach too much importance to this observation, and I prefer to trust to mere ocular inspection, which will, I think, bring home to anyone who diligently uses it the superior symmetry of the female brain, due to its comparative poverty in secondary gyri.

"It is in the internal structure of the brain, in the depth and arrangement of its gray matter, in the size, form, and connections of the cortical cells in different areas, that the most essential differences between the male and the female brain in all probability reside; but the internal structure of the brain in this relation is as yet uninvestigated. I may mention to you, however, one fact which suggests some difference in the constitution of the gray matter of the brain, in the two. During a very laborious inquiry into the specific gravity of the gray matter of every gyrus of the brain, which I carried out some years ago, I succeeded in obtaining three standard brains of perfectly healthy adults—two men and one woman—killed in accidents, and in these I found that while the specific gravity of the medullary substance of the brain was alike in all in each region—namely, 1044—that of the gray matter varied remarkably. To take the frontal convolutions as an example; in the

one male, the gray matter of these had a specific gravity of 1037, in the other of 1036, but in the female its specific gravity was only 1034. And not only in the frontal region, but in every convolution the specific gravity of the gray matter was lower in the female than in the male. I do not lay any great stress on the observation of a single case, but in several cases of death during acute insanity, which I examined, in which there had not been time for the establishment of degenerative changes, the specific gravity of the gray matter in every lobe of the brain was lower in the female than in the male, while the specific gravity of the white matter always closely corresponded in the two. In all degenerative diseases of the brain, and especially in senile decay, there is a reduction in the specific gravity of the gray matter, which sometimes falls as low as 1028 in the frontal region; and the fact—if it be a fact—that the gray matter in the female brain is of less density than that in the male brain, must mean that it is a less highly nourished and developed tissue.

"And there is still another brain difference between men and women which I must submit to you, and that a very momentous one—namely, vascular supply. During the last four years, Dr. Sydney Martin and I have, as opportunity has offered, carried on an inquiry as to the size of the great arteries that supply the brain. The details of our observations, which have been conducted by Dr. Sydney Martin with scrupulous care, and by new methods insuring, I believe, great accuracy of measurement, will be communicated to the Royal Society when they are complete; but I may mention now one or two of the results at which we have arrived. We have found that the diameters of the internal carotid and vertebral arteries, taken together, are slightly greater in the male than in the female. Their combined diameter is 8.2 millimeters in the male and 8.0 millimeters in the female; but when the difference in weight of the male and female brain is taken into account, it is found that in proportion to brain weight their diameter is greater in the female than in the male, and so it appears that upon the whole the female brain receives a larger supply of blood in proportion to its mass than does the male brain; but of course it is to be remembered that the blood going to the female brain is poorer in quality than that going to the male brain, and contains only 4,500,000 corpuscles to the cubic millimeter, instead of 5,000,000 in the case of the male. But

Dr. Sydney Martin and I have found, further, that the internal carotid and vertebral arteries, when measured separately, display a marked difference in caliber in male and female brains respectively. In ten male brains of adults free from brain disease, and ranging from twenty-five to thirty-six years of age, the internal carotid arteries had an average diameter of 2.8 millimeters on the right side and 2.75 millimeters on the left side, while the vertebral arteries had an average diameter of 2.2 millimeters on the right side and 1.875 millimeters on the left side; whereas in ten female brains of adults free from brain disease, and ranging from twenty-five to forty-three years of age, the internal carotid arteries had an average diameter of 2.6 millimeters on both sides, while the vertebral arteries had an average diameter of 2.3 millimeters on the right side and 2.075 millimeters on the left side. It thus appears that the distribution of the blood in the male and female brain, respectively, varies to a considerable extent. The internal carotid arteries, with their great branches—the anterior and middle cerebral arteries supplying the supra-orbital convolutions and island of Reil, the gyrus fornicatus, the Rolandic area, the angular gyrus, and the first temporo-sphenoidal lobule—are much larger, both absolutely and relatively, in the male than in the female brain; but the vertebral arteries which supply the occipital and temporo-sphenoidal lobules are larger in the female than in the male brain, and the basilar artery, which is practically a continuation of the vertebrals, is also larger in the female brain, where its average diameter is 2.8 millimeters, than in the male brain, where its average diameter is 2.675 millimeters. It might be thought that the free anastomosis provided by the circle of Willis renders comparatively unimportant differences of caliber in the internal carotid and vertebral arteries, and must equalize the blood currents to the different regions of the cerebrum; but the fact is that the posterior communicating arteries, which, when dilated after the occurrence of any pathological obstruction on the cardiac side of the circle of Willis, maintain the circulation in the brain in tolerable integrity, are incapable while normal, by their caliber and position, of adjusting the balance between the direct currents of the carotid and vertebral arteries, and it is certain that the result of the difference in the diameter of these in the two sexes which I have recorded is this: that the anterior region of the brain is comparatively more copiously irrigated

with blood in men and the posterior region in women. And vascular supply is in some degree a measure of functional activity, the flow of blood to an organ or part having always a relation to its working power. But the region of the brain which in men is most richly flushed with blood is that which is concerned, we have reason to believe, in volition, cognitions, and ideo-motor processes; while the region which in women is most vascular is that which is mainly concerned in sensory functions, and we thus see that there is a relation between the size of the cerebral arteries, and what observation has taught us as to the intellectual and emotional differences of the sexes.

"The structural differences between the male and female brain, which I have briefly referred to, justify the conclusions that they are organs broadly distinguished from each other, and that they have to some extent different kinds of work to do, and an inquiry into the functional relations of each with other viscera of the body, did time permit of it, would strongly confirm this view. All through life the male brain differs from the female in capacities, aptitudes, and powers. Differences early assert themselves. Thackeray has said that little girls make love in the nursery and practice the arts of coquetry on the page boy who brings the coal upstairs; and as for the page boy, it is certain that his pugnacious propensities are already fully developed and have brought him into conflict with his brother buttons. And differences are most patent of all in the prime of life when man "for contemplation and for valor formed," by "his fair large front and eye sublime" declares "absolute rule," and when woman, "grace in her steps, heaven in her eye, in every gesture dignity and love," stands conspicuous for "softness and sweet attractive grace." And differences subsist to the last. The aged spinster, left in "maiden meditation, fancy free," lavishes her altruistic emotions on cat, poodle, or parrot; and the hoary veteran, fidgety and irascible, concentrates his egotistic attention on his own liver. And these differences in brain structure and function, which at every stage of existence separate the sexes, have, as I shall presently show, a special pathological significance at the period when sexual divergence is taking place most rapidly, and when education is being pushed forward with most vigor. Education from first to last can only be safely conducted in the light of cerebral physiology, but unfortunately those charged with the conduct of education too often dispense

with that light, or regard it as misleading. It is to point out to you the risks that are run by dispensing with that light at a particularly dark and tortuous part of the educational highway that I am here this evening. I am going to notify for warning and guidance some of the perils of health which seem to me to attend the high-school education of girls, which is now so popular. . . . . .

"For obvious reasons it is difficult to get direct and trustworthy evidence about over-pressure in high schools. These schools are naturally disinclined to permit the exposure of blots on their own escutcheons, and individual cases of over-pressure have to be delicately handled. But, thanks to the kindness and magnanimity of the head mistress of one English high school—one, too, in which special precautions against over-pressure were taken—I obtained a few years ago a return which I regard as of great interest, and which throws some light on the matter.

"The facts on which this return is founded were got at by questions, put and answered in writing, the answers sent in by each girl being afterward tested by private cross-examinations by her form-mistress, and in some cases by communications with parents, so that the return is, I believe, absolutely reliable; and it is certainly not a little remarkable to find from it that of 187 girls belonging to the upper and middle classes, well fed and clad and cared for, and ranging from ten to seventeen years of age, as many as 137 complained of headaches, which in sixty-five instances occurred occasionally, in forty-eight frequently, and in twenty-four habitually. Sir Richard Owen once said to me: "Children have no business with headaches at all, and if you find that these occur frequently in any school, you may depend on it there is something wrong there." And so, I take it, there must be something radically wrong in high schools that produce so copious a crop of cephalalgia. That the headaches dealt with in this return were connected with school work is, I think, made probable by the fact that, while in twenty-six cases they are stated to have occurred in the morning, in as many as seventy-six they are set down as of most frequent occurrence in the afternoon and evening, when, as you will notice, according to an immense majority of the girls, the hardest part of the day's work falls on an already jaded brain. And there are other significant facts in this return, besides those relating to head-

Table II—High School for Girls

FORM.	NO. IN FORM.	AVERAGE AGE.	WHICH PART OF YOUR WORK DO YOU FIND HARDEST?		WHEN DO YOU DO YOUR HOME WORK?		DO YOU SUFFER FROM HEADACHES?		HOW OFTEN DO YOUR HEADACHES OCCUR?		AT WHAT PART OF THE DAY DO YOUR HEADACHES OCCUR?		SHORT-SIGHTED.	MUSCULAR TWITCHING.
VI and V.	17	17	Home work.....	15	Afternoon.....	4	No....	5	Occasionally.....	7	Morning.....	2	3	None.
			Class work.....	—	Evening.....	2	Yes....	12	Frequently.....	3	Afternoon and evening...	2		
			Equal.....	2	Afternoon and evening.	11			Habitually.....	2	No special time.....	7		
IV.	25	16	Home work.....	22	Afternoon.....	5	No....	3	Occasionally.....	9	Morning.....	5	7	None.
			Class work.....	1	Evening.....	4	Yes....	22	Frequently.....	9	Afternoon and evening...	14		
			Equal.....	2	Afternoon and evening.	16			Habitually.....	4	No special time.....	3		
Upper III.	19	15	Home work.....	16	Afternoon.....	4	No....	4	Occasionally.....	9	Morning.....	5	6	None.
			Class work.....	1	Evening.....	3	Yes....	15	Frequently.....	5	Afternoon and evening...	10		
			Equal.....	2	Afternoon and evening.	12			Habitually.....	1	No special time.....	—		
Middle III.	26	15	Home work.....	7	Morning.....	3	No....	3	Occasionally.....	11	Morning.....	7	4	One.
			Class work.....	3	Afternoon.....	6	Yes....	22	Frequently.....	7	Afternoon and evening...	12		
			Equal.....	16	Evening.....	6			Habitually.....	4	No special time.....	3		
					Afternoon and evening.	11								
Lower III.	24	14	Home work.....	15	Afternoon.....	7	No....	8	Occasionally.....	11	Morning.....	3	3	One.
			Class work.....	—	Evening.....	3	Yes....	16	Frequently.....	3	Afternoon and evening...	11		
			Equal.....	9	Afternoon and evening.	14			Habitually.....	2	No special time.....	3		
Upper II.	29	13	Home work.....	20	Afternoon.....	15	No....	3	Occasionally.....	12	Morning.....	1	5	None.
			Class work.....	—	Evening.....	4	Yes....	26	Frequently.....	5	Afternoon and evening...	11		
			Equal.....	9	Afternoon and evening.	10			Habitually.....	9	No special time.....	3		
II.	32	12	Home work.....	19	Afternoon.....	19	No....	12	Occasionally.....	6	Morning.....	4	5	None.
			Class work.....	10	Evening.....	3	Yes....	17	Frequently.....	10	Afternoon and evening...	10		
			Equal.....	—	Afternoon and evening.	—			Habitually.....	1	No special time.....	3		
I.	15	10	Preparation in this form is done in the morning. No home work.		Morning.....	15	No....	8	Occasionally.....	6	Morning.....	—	4	Two.
							Yes....	7	Frequently.....	—	Afternoon and evening...	6		
									Habitually.....	1	No special time.....	—		

aches, for you will observe that as many as thirty-seven of the 187 girls were short-sighted, and that four of them exhibited choreic movements. And this return represents no exceptional state of things. Inquiries made quite lately satisfy me that a very large proportion of high-school girls still suffer from headache, that neuralgia is common among them, and that they display multifarious indications of nervous exhaustion. It is no infrequent occurrence, I am told, for the more delicate girls, who return after the holidays looking tolerably well, to break down in the middle of the term, to be absent from school for a few days or weeks, to return and struggle on with their work, but finally to shirk the examination at the close of the term. But if we had no evidence of suffering or disability immediately resulting from high-school training, as it is now carried on, we, as medical men, should not hesitate to pronounce that training in some respects pernicious, from a consideration of its character alone. Two-thirds of high-school girls will attest that the hardest part of their work—preparation, which involves the opening of new ground, an advance on what has been already learnt, and effort in surmounting obstacles—has to be performed in the evening, when they are already worn out, at the very time when in the cycle of daily life their brains are least capable of exertion. And no inconsiderable number of high-school girls will attest that this arduous work of preparation is often carried on until ten, sometimes even eleven o'clock at night. Within the last month I came upon two girls attending a London high school, bright, clever, ambitious girls of fifteen, high in their classes and determined to hold their places, who admitted that, in spite of all restrictions, they were working up till ten o'clock two or three nights a week, and in one of them I could discern, in stunted growth, round shoulders, and intense nervous susceptibility, the effects of this ill-timed diligence in study. A friend of mine in the north of England tells me that he has recently removed his two daughters from a high school and placed them under private tuition, because he found that they were regularly working up till ten o'clock at night. . . . .

"The evils resulting from over-pressure in high schools for girls—whether that over-pressure be due to home work, or competition, or examination strain—are brought about through its influence on the cells of the brain, and it is not

difficult to understand how these cells are affected. It is unquestionably true of all cells, that when they are in any way stimulated in excess of their powers of taking up nutriment, or deprived of an adequate supply of nutriment, they utilize as food material their own protoplasm, and so induce disordered metabolic processes with subsequent degeneration. In pyrexia, in the presence of which metabolic activity is always increased, we find that the protoplasm of the muscular fibers of the heart and of the cells of the liver passes through a stage of cloudy swelling, indicative of increased activity, which merges ultimately into fatty degeneration. And when to the stimulating influence of pyrexia is added that of toxic materials circulating in the blood, as during typhoid fever or diphtheria, we find that degenerative changes are not confined to the excretory glands and heart, but invade the nerves and muscles generally. Well, it appears to me that the fever of the mind which over-pressure sets up is capable of influencing cell protoplasm in much the same way as ordinary pyrexia. Its effects have not yet been traced out with the same precision. No doubt they differ in degree and distribution, but they are probably much the same in kind. When the cells of the brain are stimulated in excess of their powers of taking up nutriment, as they are during forced mental labor, or when suitable supplies of nutriment are cut off from them, as may be the case during the impairment of digestion which forced mental labor not rarely entails, then the metabolism in these cells is, we may infer, altered, and they degenerate and secondarily induce wide-spread degenerative changes throughout the system. The group of symptoms which is characteristic of the mental failure which follows upon severe over-pressure, and which may be summed up as acute or apathetic dementia, is almost identical with that seen in cases in which mental failure has followed upon acute specific diseases, and in mental failure of the former kind, not less than in the latter, we have also sometimes dilatation of the heart and changes in the liver, kidneys, and voluntary muscles; and in both kinds of mental failure, recovery takes place if the fatty degeneration has not so far advanced that the active protoplasm of the cells is absorbed, whenever the cells, which have had extra work thrown upon them, are allowed absolute rest, and are placed in favorable conditions as regards nutrition.

"I have referred to acute, or apathetic dementia, as the most

characteristic of the pronounced mental changes which severe and continued over-pressure acting on a neurotic subject may induce, and the slight mental changes which are similarly induced are most generally akin to it, and are but the buds of the symptoms which it presents full blown. Thus it is no uncommon event to hear overworked high-school girls complain that their power of acquisition and attention is impaired, that they take far longer to their work than they used to do, that they cannot remember what they have learnt, that they read their lessons without understanding them, that they sometimes lose themselves and forget where they are, and that what they call 'queer thoughts' keep coming into their minds, while the observation of these girls at the same time reveals that they are languid and irresolute, or unusually irritable. Such slight departures from normal mental states, for the most part, go no further, but are rectified by the holidays; but now and again they advance into that mild coma which corresponds with apathetic dementia. But, besides apathetic dementia, there are, of course, many other mental aberrations to which over-pressure may lead up, the nature of these in each case being determined by the inherited tendencies, antecedents, or environment of the girl. We may have cyclones of mania, or anti-cyclones of melancholia, hurricanes of morbid impulses, or the settled bad weather of moral perversion. And as regards certain minor mental changes which thus arise, it is noteworthy that they are often concealed by girls who do not comprehend and can scarcely describe them. This is particularly the case with reference to those voluminous mental states described by Dr. Hughlings Jackson, which are sometimes the harbingers of epilepsy.

"I cannot pretend to classify or describe the vagaries of nervous disturbance that present themselves to medical observation in girls in these days, and in the production of which over-pressure plays some part, but I would name insomnia of the commonest occurrence often of evil import, sopor or sleep so deep and difficult to break as to be almost cataleptic in nature, neuralgia, chorea and hysteria. And, besides nervous disturbances, there are many ailments and diseases begotten or fostered by over-pressure which medical men are familiar with in high-school girls in these days. Chief of these are anæmia and general delicacy. Women suffer from anæmia in far larger proportion than men. In the ten years, 1881 to 1890, the

deaths from anæmia, chlorosis and leucocythæmia in England and Wales were 32.29 per 1,000,000 among men, and 54.83 among women. And, as is well known, chlorosis and anæmia show themselves in girls from ten to twenty years of age more frequently than at any other period of life, and may be induced by mental worry or excitement, which causes a diminished production of blood corpuscles. In his very able investigation into the physical and mental condition of school children, Dr. Francis Warner has satisfied himself that mental stimulus applied to children 'does lower their general nutrition.' He found that pale and delicate-looking children are proportionately more numerous in schools attended by children of an upper social class and presumably well fed, than in schools attended by children of the poorer class, presumably not well fed; and the only explanation of this he has to offer is that better-class children are subject to more mental stress than children of a poorer class. A single glance at some high schools, and the complexions of the girls assembled in them, convinces that they are deficient in red corpuscles, however rich they may be in blue stockings.

"The anæmia encountered in high-school girls is sometimes due to the direct action of mental tension on the blood-forming apparatus; but it is sometimes due also to the action of that tension on the digestive functions. Large numbers of high-school girls suffer from loss of appetite; a certain number go to school without breakfast. Worn out, they oversleep themselves, and leave scant time for the morning meal; or, after a night of broken rest, they rise unrefreshed, swallow a cup of tea, the neurotic properties of which they have already discovered, but decline solid food, or merely trifle with it. They labor under a gastric disorder now so common that it might receive a distinctive appellation, and be called *anorexia scholastica*, in which the lessened flow of energy from the exhausted nerve centers retards the functions of all the abdominal viscera.

. . . . . .

"The study of the effects of over-pressure, immediate and remote, on the monthly rhythm, and on the fitness and capacity of the woman to reproduce the species and to bear healthy children—health implying both bodily and mental vigor—must be kept for separate examination at some other time. So also must the study of the effects of secondary over-pressure, as applied, in colleges and halls, to young

women at from eighteen to twenty-four years of age. Admirable culture is supplied in these colleges and halls; but they, too, have their risks, notwithstanding that their pupils are all picked lives. The suicide of a pupil, who had just undergone examination at one of them, was reported two months ago. I must, however, even now express my belief that the University of St. Andrews, in deciding, as it has lately done, to open all its classes in arts, science, and theology to women as well as men, has taken not a retrograde step—for our ancestors never did anything so foolish—but a downhill step toward confusion and disaster.

"Its now empty benches may be thronged with pupils, its professors may fatten for a time on duplex fees; but the attempt to educate young men and women, not only on the same lines but in the same coaches, cannot but prove injurious to both. 'What has been decided among the prehistoric protozoa cannot,' it has been well said, 'be annulled by act of Parliament,' and the essential difference between male and female cannot be obliterated at a stroke of the pen by any Senatus Academicus. To essay such work is to fly in the face of evolution. Among unicellular organisms the conjugating cells are exactly alike, and do exactly the same work in the world; but among multicellular organisms they are dimorphic, and from that point upward differentiation in structure and function goes on. With occasional aberrant variation the sexes diverge from each other, not merely in primary and secondary sexual characteristics, but in functions, not directly associated with sex, as we ascend in the animal kingdom, and it is in the human species that sexual distinctions, bodily and mental, are most marked.

"And with this divergent differentiation of the sexes has come reciprocal dependence and higher harmony. It is no question of superiority or inferiority of the one sex to the other. Each sex is higher; each is lower; together they make up the perfect whole. Separate, they are infirm; in union, they are strong; in competition, they are mutually destructive. It is in the sympathetic accord of the differentiated sexes that human progress can alone be hoped for.

> "He is a half-part of a blessed man,
> Left to be finished by such a she,
> And she a fair divided excellence
> Whose fullness of perfection lies in him.

"And blindness to this complementary relation of the sexes, so patent to Shakspere, it is that leads wise men—wise but ignorant, or contemptuous of biology—to sanction intersexual competition in education and for subsistence with its ruinous effects. Men and women are constitutionally adapted to do different work in the world. To set them to do the same work is wasteful, and detrimental to the sex that is less adapted to it. It is impossible to contemplate with complacency some of the experiments in this direction which are being carried out, and it is impossible to speculate, from a medical point of view, without apprehension what the outcome of such experiments may be, or what high school, and college, and hall education may do for the country in a few generations, if they be pushed on with relentless zeal."

VII

DISCUSSIONS

LARGE SCHOOL BOARDS OR SMALL?

The school board is one of the unsolved problems of municipal administration in the United States. Shall the board be large or small? Shall it be appointed or elected? Shall it be absolute, or under the control of the common council? Shall each member represent the entire municipality, or merely the ward or section in which he lives? There is scarcely a conceivable scheme with regard to boards of education that may not be found in operation somewhere in the United States. In general, the discussion centers about this question: Is it better to have large boards, whose members represent each a small section, or small boards, whose members each represent the entire city? In short, it is claimed that the interference of petty politics is necessary to the management of schools in the American city. Is this so? The best indication of the truth is the accumulated experience of cities having boards of different kinds, appointed in different ways. As a contribution to this discussion, the following experience of the city of St. Paul is given.

The plan of appointment of the St. Paul board was given in detail in the EDUCATIONAL REVIEW for February last. In brief, it is this: The board consists of seven men, appointed by the mayor, for a term of three years each, who represent the city at large. The first board under the new law came into office May 15, 1891; hence they have continued in office now for something more than one year. Experience thus far completely vindicates the wisdom of those who framed the law.

The number of members being considerably smaller than that of the wards in the city, it was impossible to have all localities recognized, and the mayor broke over all party lines and appointed men as follows: Two bank presidents, men of high standing in the business community; two college presidents, two editors, and a physician. Later one of the editors

resigned, and in his place was appointed a prominent independent minister.

This board has taken hold of the work of the schools with a degree of vigor and wisdom never before known in the history of the city. Although the enrollment has increased about one thousand during the year, the expenses have been largely reduced, and this without any loss, but rather with great gain in efficiency. This can best be shown, perhaps, by a brief statement of the work accomplished in one year.

The course of study has been enriched in the following ways: General history has been introduced into the fourth grade, accompanied and followed by United States history through the seventh grade, after which, in the eighth grade, its place is taken by English history. Elementary science has been introduced into all grades in connection with work in the various arts of expression, drawing, writing, and manual training. The non-essential portions of arithmetic have been removed, and an elementary course in higher mathematics has been substituted. This does not go into full operation until the next school year.

Manual training, consisting of shop work and drawing in connection, has been introduced into the sixth, seventh, and eighth grades of the grammar schools and has been adopted for introduction the next school year into the fourth and fifth grades. The manual-training school, with an elementary course of three years, has been advanced and made a part of the high school with a full four-years' course. Sewing, which had been pursued in the schools, but which had been removed by the old board, has been restored, and is now taught in all grades from the fourth to the eighth inclusive. Cooking has been taught this year as an optional study in the high school, and has been adopted for the seventh and eighth grades of the grammar schools for the next school year.

The board last fall established a single kindergarten in one of the public schools, not as an experiment, but as an object lesson to the people, and has now decided to introduce kindergartens for the next school year into all schools having a sufficient number of children of suitable age.

A plan has been formulated and partially carried into effect for relieving the teachers from the anxiety of annual elections. A night high school has been conducted by the teachers of the day high school, and has been attended by nearly eight

hundred students, mostly adults and many of them teachers. An immense amount of work has been done for and by the teachers in preparation for the newer and higher duties. Confidence and enthusiasm have been restored.

An old act, compelling attendance upon the public schools, which had lain dormant upon the statute books for several years, has been revived and enforced as fully as it will admit. Certain changes in this law have been found necessary to make it effective, and these will be asked of the next Legislature.

All this has been accomplished without friction, and, practically, without opposition, not merely on paper, but in the work of the schools, by a body of men intelligent and self-sacrificing, with no axes to grind, whose sole purpose it has been to improve the schools of the city.

The writer is disposed to question whether, under any other of the various methods of appointing school boards, the same results could have been secured. In the previous experience of St. Paul, one great foe to the success of the schools has been the local interests represented by the members from the different wards, causing either antagonism or trading. The great fault of large boards is lack of unity and the possibility of demagoguery. Of course, a small board, composed of bad men united in one evil purpose, can accomplish it readily; but such a thing is rare, and the smaller the board, the easier it is to hold its members responsible for their acts.

Certainly, in St. Paul, no board of education ever stood so high in public estimation, and it is doubtful whether votes enough to be counted could be secured for a proposition to go back to the old method of ward representation. Certainly not, if those specially interested in the schools were the voters. No board was ever freer from cranks, and no board ever supported its superintendent and teachers more fully.

Of course, this is the experience of but one city. It may be said that its success is due to the exceptional character of the men composing the board. Doubtless this is true, but it is claimed in St. Paul that under no other system would it be possible for such exceptional men to be appointed to the board.

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THE OLD AND NEW METHODS IN GEOMETRY

The hypothetical constructions of geometry have often been objected to as illogical. In the January (1892) number of this REVIEW Professor Richards of Yale again called attention to their absurdity, but it seems worth while to point out more at length just what the absurdity is. Geometry assumes (in the definitions) that the figures defined have an existence, and (in the general axioms) that certain mathematical relations are true and obvious. If now it starts on its legitimate work of proving certain relations in these figures it meets a difficulty, viz., the relations to be proved are not always obvious, simpler relations are desirable, and a more elaborate figure with auxiliary parts is sought.

Euclid apparently examined the subject somewhat carefully and placed among his assumptions three postulates or "demands": (1) A straight line may be drawn between any two points. (2) A straight line may be prolonged indefinitely. (3) A circle may be drawn with any point for center and with the circumference at any distance from the center. He also assumed two or three geometrical axioms. With these assumptions he deduced the "six books." Not a line is drawn, not a statement is made, that is not justified by an earlier statement. The first proposition (a problem) rests on postulates for the construction and on axioms and definitions for the proof. The second proposition (a problem) rests on Prop. I, and postulates for construction, and on axioms and definitions for proof—and so on. As another example, Prop. XII is: *To draw perpendicular to a given straight line from a given point without it.* The construction rests on two postulates and Prop. X, the proof on two constructions (postulates), two definitions, and Prop. VIII. Now the advocates of ancient geometry claim that logic demands some such method as this: that at whatever point we open the book a chain of influences shall lead us back to the first assumptions. Euclid aimed to make his postulates few and simple; that is not essential for logic, but it is probably desirable for other reasons.

Now for the modern. He makes substantially the same beginning that Euclid does—definitions, axioms, and postulates for straight line and circle. And when he needs a more elaborate figure he draws any line that suits his convenience. The postulates stated with a show of vigor in the early pages of

our popular text-books are held to in the propositions no more than if the author had never heard of them.

Angles are bisected, parallels and perpendiculars are drawn, without a hint of justification. Sometimes it is proved that there can *be* a perpendicular, and only one, at a given point on a given line; but we still have no support for drawing one, for the only straight line provided for is to be drawn from point to point. There may *be* an angle of $51\frac{3}{7}°$; but if any geometer could, on the basis of Euclidian postulates, *draw* one he would revolutionize geometry, for he could then inscribe a regular heptagon in a circle. The case is simply this: The postulates are entirely disregarded in proving the propositions for about two books, and straight lines and angles are drawn at the pleasure of the demonstrator. Then the problems are introduced, constructed by means of the postulates, and proved by the earlier propositions. This leaves the early proposition, and consequently the later ones, as unsupported as ever. Mr. Shutts (EDUCATIONAL REVIEW for March, 1892) says: "The pupil is told—to make a drawing that shall simply *represent* to the eye—the relations desired to be considered." The word "figure" has already been defined in the books, and it must be remembered that any *diagram* only represents the figure. The postulates, if they are good for anything, should justify the figure. With or without a diagram the pupil can support the construction, "Draw a straight line from A to B," by the postulate, "A straight line may be drawn between any two points"; but he cannot support the construction, "Bisect the angle A," by anything,—he cannot *draw* in a geometrical sense the bisector at all. He may prove there is one; so may he prove there is a trisector. He may represent to his eye either line, bisector, or trisector, but *the thing represented*, the "line" of his definitions, cannot be "drawn": no postulate supports it.

It may be said that at any rate the logic may be saved by justifying the constructions in one sweeping postulate: Any conceivable straight line, or circle, may be drawn. Allowing the logic, there must then be considered the wisdom of this method. It must be remembered that nothing is gained in geometrical results. Euclid and his method leads us to the most recent geometry. It is not to the school of the "improvers" that we must go for the freshest discoveries regarding points and lines in triangles and circles. And if we gain noth-

ing in these fields we lose in others. "Among the Greeks, the power of speculation remained active during their whole existence as a nation, even down to the taking of Constantinople: it declined, indeed, but it was never extinguished. Their latest knowledge was inquisition, as well as their earliest. They preserved their great writers unabridged and unaltered, and EUCLID did not degenerate into what are called *practical rules*. . . . Greek geometry, as all who have read EUCLID may guess, gained its strength by *striving against self-imposed difficulties*. It was not permitted to take instruments from every conception which the human mind could form; definite limitation of means was imposed as a condition of thought, and it was sternly required that every feat of progress should be achieved by those means, and no more. . . . [This is] the mode of thought under which science made its greatest advances in Greece." [1]

And it is this mode, this method of self restraint and scrupulous logic, which hypothetical constructions abandon.

It is safer, perhaps, to anticipate and remove one or two possible misconceptions. In the first place, it is not Euclid's "Elements," but it is his method which the advocates of ancient geometry wish to see in use. Likely there are details in the "Elements" which can be improved, and no doubt we need propositions in solid geometry that Euclid does not give at all. The complaint against the modern text-books is not wholesale. These books are prepared, generally, by able men and skillful teachers, men who know their public, and who know that a book greatly different from the ones in present use would probably get but scanty attention. Besides, much good mathematical work may be done with an imperfect instrument. The pupils get an impression of mathematical vigor from the subject, even if flaws in logic are detected. Some teachers even enjoy the mistakes in a book, and think good may come from such evils. Finally, the fault here complained of should not be laid entirely to geometry teachers and bookmakers. Obviously if our colleges consistently demanded Euclid, or anything else, the preparatory schools would try to meet the demand.

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[1] De Morgan, quoted in the *Mathematical Monthly*, vol. ii, pp. 67 and 69.

VIII

REVIEWS

A Text-Book in Psychology.—An attempt to found the science of Psychology on Experience, Metaphysics, and Mathematics. By JOHANN FRIEDRICH HERBART. Translated from the Original German by MARGARET K. SMITH, Teacher in the State Normal School at Oswego, N. Y. International Education Series, edited by Dr. W. T. HARRIS. New York: D. Appleton & Co., 1891. pp. xlv, 200. Price $1.25.

Herbart's *Lehrbuch zur Psychologie*, of which the present book is a translation, appeared first in 1816, and, in revised edition, in 1834. The work is, on the whole, so dependent upon the author's metaphysical presuppositions, and upon the considerations which he developed at length in his *Psychologie als Wissenschaft* (2 vols., 1824; vols. v and vi of the collected *Werke*, ed. Hartenstein), that, as it lies before me, the present text can hardly be of much service to students whose only acquaintance with Herbart is to be derived from its pages. The translator herself is not unaware of the limitations of her task. "The design," she says in her introduction, "of the present translation is not so much to furnish information as to awaken an interest which may develop a desire for a clearer insight into principles that seem to form the best foundation that has yet been discovered for a rational system of scientific pedagogy." This very modest confession suggests here only the comment that, if it is not good pedagogy to try to convey information without awakening an interest, it is perhaps a little hopeless to seek to awaken interest in such matters without conveying a good deal of information. And unfortunately Herbart did not make access to his principles easy by this, his smaller psychology.

It may be well, then, to remind ourselves, as we begin, of Herbart's actual significance in the history of thought, and in particular in the history of psychology. Herbart, as pupil of Fichte, and as teacher of philosophy during the age of post-Kantian idealism, represents in his own person a form of reaction against the deeply paradoxical fashion of thinking then prevalent in philosophy. The principal theme of the age in

German thought which lies between 1781, when Kant's *Critique* appeared, and the close of the idealistic period, was the nature and the implications of self-consciousness. "Who am I?" was the central problem of metaphysics. The inner life was the one great theme of poetry. Fichte's Ego and Goethe's *Faust* are alike characteristic products of the time. The Romantic School and the Hegelian logic embody in different ways the same conflicts and reflections. But the metaphysic of self-consciousness proved to be no clear or simple thing. The definition of the true self, long pursued, evaded as persistently all efforts at a sharp formulation and description of its content. What one found were rather the ceaselessly renewed paradoxes of self-consciousness, and so it was that this became an age of paradoxes. Now, such an age is easily metaphysical, ethical, and poetical in its undertakings. But it is too much absorbed in its problems to study their natural history. It furnishes endless materials for the psychologist, but it does not love psychology. It exhorts men to the higher life, but it does not favor a scientific study of the phenomena of life. Its reflection is fond of the problematic; and it is proud of baffling common sense and of confusing the Philistines with its wonders of high contemplative insight. But the dry light of descriptive science it generally shuns. It makes grand constructive syntheses, but the more searching analyses of the psychologist are fruitless for its ends. It is devoted to the "spiritual ties." It, therefore, fears to find merely the dead "parts" in its hands. Hence the indifference to analysis, and to the empirical study of natural history.

Now into such an age Herbart comes as an enemy. At the university, as pupil of Fichte, as critic of the early essays of the young Schelling, he already revolts against the great philosophical principle called *das Ich*. Thenceforth, as he himself tells us, he steers against wind and tide. Self-consciousness, he insists, is something that cannot be understood by itself, and that cannot be made a principle of philosophy. The very idea of a self involves, so thinks Herbart, essential self-contradictions. And Herbart is no lover of contradictions. From this time on he is a declared foe of the philosophical methods current in the thought of his time. He hates the paradoxes of self-consciousness, just in so far as they are made anything but objects of destructive criticism for philosophy. What these paradoxes need is not to be glorified, but to be psychologically

explained. It is their natural history, not their supposed world-embracing significance that the philosopher is to consider. Philosophy is founded on the clear explication of the contradictions latent in our natural and untrained human thought, and on the effort to remove these contradictions by a plain account of what the consistent truth of things must be, so far as this truth is accessible. Philosophy must not tolerate contradictions, nor dally with them, as the current idealism did. Philosophy must do away with them, by explaining their origin. Such an explanation will be furnished by a science of psychology, which Herbart accordingly feels called upon to found. For what exists ready to his hand in this field, he finds very inadequate.

Such is a suggestion of Herbart's position as a philosophical thinker. He is acute enough to recognize, with his fellows and opponents, many of the deeper problems and paradoxes of the natural consciousness of man. Only whenever the idealists saw such paradoxes, they at once looked in this direction for a new revelation of profound mysteries; but whenever Herbart lighted upon such, he regarded them as illusions, to be explained as results of the natural laws of mental life. Accordingly Herbart, as psychologist, is exceedingly suspicious of the immediate testimony of consciousness. He seems to himself to live in an age of splendid spiritual illusions, and he disbelieves all appearances when he himself looks within. Experience, must, indeed, be the first guide everywhere; but for the psychologist experience needs a sort of critical reformation. The inner life isn't what it seems to be. Hypotheses are needed to comprehend it. Of these hypotheses metaphysics furnishes Herbart what he regards as the deepest in the theory of the soul as *einfaches Wesen*, whose *Selbsterhaltungen*, or self-preservations, form its simple *Vorstellungen*, or ideas. These are the stuff of which mental life is made. Their relations are those of agreement, of opposition, or of disparity; and out of these relations, and out of the vast mass of simple *Vorstellungen* which the soul gets in the presence of other *Wesen* (*i. e.*, of the other "simple beings," with which it stands in what Herbart calls a *Zusammenstellung*)—out of all these ideas and relations our consciousness is built. Our understanding, our reason, our will, our ideals, our countless illusions of the inner life, including that vast illusion of Fichte and of the idealists called *das Ich*—all these things, thinks

Herbart, are the product of the massing of our *Vorstellungen*; are due to their repulsions, to their attractions, and to the movements upward from and down toward, or below the "threshold of consciousness, on the part" of groups of these simple ideas. All these relations and movements, moreover, are determined by mathematical laws. Herbart fancies himself (and this is the purest and most arbitrary of fancies) in possession of such fundamental mathematical laws of the relations of the *Vorstellungen*. An almost pathetic industry, founded upon a few wholly indemonstrable assumptions, gives us, in the larger psychology, nearly one half-volume of the mathematically formulated mechanics of the inner life. To the vaguer spiritual dreamings of the romantic period, Herbart thus opposes an equally airy edifice of algebraic formulæ, of which the advancing science of the natural history of mind has since been able to make only the very smallest use. Herbart has the credit in this direction of having stimulated research. But he has, indeed, as mathematical psychologist, done little more.

The theoretical work of such a man is useful for two classes of students. The first are those concerned with the history of psychology. For them Herbart remains a great master of his art, at an early period of its modern history. As such they need to refer to him frequently. They will probably not need a translation. The second class consists of the general students of psychology, who want guidance as to specific problems, such as are the practical problems of teachers. Such will turn at first with a certain eagerness to the present translation. Dr. Harris's introduction, in many respects wholly admirable, but, in respect to what is said about Herbart's views of "Apperception," rather too attractive and promising, may lead some such readers to regard Herbart too much as if he were a guide whose present authority were at all comparable with his historical dignity. One fears that the hopes thus aroused will ere long be disappointed. Herbart, as said above, here makes the entrance to his own doctrine as hard as possible; puts his most difficult technicalities first, and will for many such readers seem to have but made darkness visible.

It is at this point that comparatively untechnical readers of our second class—in case, despite all, they preserve their resolution—will find themselves especially dependent on the translator's tact to help them over their first perplexities. And where a translator has labored with such obvious care and de-

votion as Miss Smith has done, it seems a pity to point out defects. Yet there are some pretty serious misjudgments, as well as out-and-out errors in this translation; and the misjudgment which comes first to hand must cause a good deal of perplexity to innocent readers. Our translator chooses, namely, "concept" as the usual translation for Herbart's best-known technical term, *Vorstellung*. She explains her own use of *concept* on p. xxii of the introduction, but not in such wise as to make entirely clear what Herbart really meant. In view of the long since classic use of the word "idea" by Locke and his successors in psychology, there can be no doubt that, unfortunate as is the ambiguity of this term in its technically metaphysical associations, the word *idea*, as the English psychologists since Locke have employed it, is the one word worthy to render Herbart's *Vorstellung*. All the customary connotations of *concept*, however, are of a very different sort indeed, and the reader may well complain of a choice which must make his Herbart so much harder to him as he toils through this translation. What shall one make of such a statement as that "we shall not think of complex or of compound concepts . . . but of entirely simple concepts or sensations?" One ignorant of Herbart, but somewhat accustomed to the ordinary use of the English word "concept," will at first naturally begin to wonder into what company he has got himself.

For the rest, our translator, subject to the unhappy destiny which so often pursues those devoted to her art, sometimes falls a prey to more than mere misjudgments. In Section 16, note (translation, p. 13), Herbart defends his own use of the word *Bewusstsein* (*i. e.*, consciousness), in so far as he does not limit the application of the latter term to cases accompanied with *innere Wahrnehmung*, or "self-conscious" awareness. He says, accordingly: "Man wird sich hier einen erweiterten Sprachgebrauch müssen gefallen lassen." The translation reads: "Here we are obliged to be content with a *circumlocution!*" On p. 14, *dahin* is translated *thence*. The technical term *Hemmungssumme* causes the translator trouble. On p. 13 she renders it "arrested portion," on p. 16, "amount of suppression." Surely so definite and characteristic a term needs a fixed rendering into English. On p. 58 one reads: "Less distinct, but nevertheless indispensable, is the series produced by the putting together of sensations of the same kind." Herbart's text runs: "Minder deutlich, aber dennoch

unvermeidlich wird die Reihenform producirt bei der Zusammenstellung, etc. Immediately below, on the same page, a passage, reasonably clear in Herbart's text, and bearing on the theory of the color sense, has been rendered almost unintelligible by an unnecessary transposition. On p. 60 one reads the somewhat puzzling statement that probably "the geometrical concept of space . . . is a result of a process of producing or drawing out that has gradually become stationary." Herbart said in just this place nothing so odd, but only made the innocent-seeming suggestion, "dass auch die geometrische Vorstellung des Raums . . . nur eine allmählig zu Stande gekommene Produktion sei" (*i. e.*, is no innate idea, but is an outgrowth of the series-building processes which he has just been describing). Of such more or less serious inaccuracies, a number of other examples have come under the present reviewer's notice, some of them matters of a single word or phrase (such as *most rarely*, on p. 160, for Herbart's *am seltsamsten*), others of considerable importance.

In sum, one must say, that while this translation generally seems to be successful, and is occasionally a remarkably smooth rendering of very dry portions of Herbart's most technical arguments, it is not free from occasional blemishes of a very inconvenient sort, and ought to have been more carefully revised.

But to return to the needs of our general reader: If he still seeks in this book for what will be of most service, let him at once aim at those chapters and passages which show Herbart as a keen empirical analyst of the natural history of complex inner processes. Let our general reader expect little or no positive help from the system as a whole. Let him dwell most upon part second, "Empirical Psychology," with its important negative criticism of the doctrine of the "Faculties." In part third let him read with especial care the chapters on the development of self-consciousness, and on self-control. Let him follow Dr. Harris's hints, as given in the introduction, concerning the study of "Apperception." But above all, let him not suppose that "Apperception," or any other such convenient bit of the Herbartian terminology, is henceforth going to be a word to conjure with, or that, in the great world of modern pyschological research, Herbart's principles, as he left them, can still be said to form, in any sufficient sense, a modern foundation "for a rational system of scientific pedagogy." Herbart may

plant (as he did), and many others may water (as they have done); but only the common labor of generations of investigators can, in this field, give the true increase. There is no royal road to a "rational system of scientific pedagogy"; not even through the golden gates of "Apperception."

JOSIAH ROYCE

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Psychologie der Suggestion.—Von Dr. phil. HANS SCHMIDKUNZ, Privat docent an der Universität München; mit ärtzlich-psychologischen Ergänzungen von Dr. phil. et med. FRANZ CARL GERSTER, Practischer Arzt in München. Stuttgart: Ferdinand Enke, 1892. pp. xii, 425.

This latest contribution to the amazingly productive department of hypnotic research differs in purpose and treatment from its many fellows. The usual manual of hypnotism, such as that of Moll, recently translated in the Contemporary Science series, accomplishes its object when it gives an orderly exposition of the facts, the processes, the extent, the applications, the history, and the explanation of the chief hpynotic phenomena; the present volume selects for special treatment the kernel of the entire body of facts, the illuminating central core of the subject—the significant doctrine of suggestion—and aims to portray the place and bearings of this truth in the general science of psychology. The process of suggestion is universal, and stands for nothing less than the sum total of the means by which our actions are influenced; by circumstances, by thoughts, by things, by words, by training, by heredity, by our fellow-men, by our environment. When we subtract that small portion of our conduct that follows from our reasoned acquisitions, and which is based upon a thoroughly logical sequence of thoughts and deeds, what remains is more or less the result of suggestion. Suggestibility is thus the normal condition of everyone, and the myriad shapes it assumes depend upon the degree and the direction of our susceptibility.

When the sight of food makes our mouths water, when we take out our watch when a neighbor looks to see what time it is, we obey the suggestion of an act or thing—a real suggestion. When we acquiesce in a popular belief that we hear talked about, or lose our appetites at the recital of an unpleasant tale, we are under the influence of a verbal suggestion. When

we unhesitatingly follow in the leadership of some strong intellect we are at the mercy of a personal suggestion. There are many other points of view from which to regard and subdivide classes of suggestion, but the principal factors are the directness, the degree of intention, and the power of resistance accompanying the process. When the mere presence of the physician relieves the patient, when we hold our breath while gazing at the trapeze performer, when we appreciate a picture on finding the name of a famous artist upon it, or enjoy a bad cigar in a fine wrapper, we are influenced by indirect suggestions, while in the last instance the suggestive step is intentionally devised. When we ask leading questions in order to induce a favorable answer, and find ourselves blushing when someone asks "why do you blush," we are under the influence of intentional verbal suggestions. We can even be our own "suggestors" and decide to hear an aria in the rumbling of a train, ignore a slight ailment when we know we must be in good spirits for the evening, make ourselves shudder by thinking of high and dangerous places—and is not the process by which we put ourselves to sleep an auto-suggestion? A pedagogical illustration may also be added. "By sternly staring at his pupil, by assuring him of his ignorance and the like, a teacher may frighten off what is perfectly familiar, just as in hypnotism we succeed in suggesting the inability to write one's name."

Hypnotism presents a state of exaggerated suggestibility and is by no means the only condition of excessive suggestibility. We all have moods in which we yield easily to surrounding influences and suggested impulses; in sleep we pass through such a state, and the action of drugs upon the nervous system holds out other means of its production. Comprehensive exposition of these analogues in normal life to the phenomena characteristic of the hypnotic state, is one of the main theses of this work; both states represent in different ways the varied and significant parts that suggestion plays in mental action. This, then, is the psychology of suggestion, and while it does not altogether substitute explanation for description, it none the less rationalizes our conceptions of the subject, and removes the *bizarrerie* of hypnotic phenomena in so far as it assimilates them to the better understood occurrences of normal life.

The wide-reaching applications of the doctrine of sugges-

tion are obvious. The large share it plays in the treatment of disease—psycho-therapeutics—is the subject of many special treatises; the complications its possibilities introduce into legal procedure, make more difficult the perplexing problem of placing responsibility; and its application to practical ethics and education have been more than hinted at. Historically, too, it sheds light on many discredited or perversely described events, and adds significance to the study of anthropology and religions.

Dr. Schmidkunz has ably sumed up this vast field, and strongly presents his main theses; he has embellished his exposition with many apt illustrations and copious notes. The style is good, though, for the last half of the volume, unnecessarily prolix. The work may be recommended as a successful essay, giving this important doctrine of suggestion the place it deserves in a scientific psychology.

JOSEPH JASTROW.

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A Grammar of the Homeric Dialect.—By D. B. MONRO, M. A., Provost of Oriel College, Oxford. Second Edition, Revised and Enlarged. New York: Macmillan & Co., 1891, pp. xxiv, 436. Price, $3.50.

To those who are familiar with Simcox's *Demosthenes* and Riddell's *Plato*, this book, which is of the same size and type, will need no further commendation. Its author is well known in America as a leading Homeric scholar, partly through his excellent article on Homer in the Britannica, partly through his annotated Iliad, and partly through an earlier edition of the book now under review. If it be true that the scholarly productions of the English universities are small and scarce compared with those of Germany, it must however be conceded that the fruit is usually sound and wholesome. The scholars of Oxford and Cambridge may not be as fearless or as patient in research as those of the German universities, but they have this virtue, they always keep on this side of the stars and in touch with common sense.

This new edition contains some fifty or sixty pages more than its predecessor. The method throughout is substantially the same. The book might well be called a very perfect herbarium of Homeric specimens. The treatment is natural, consistent, thorough. Starting with the predica-

tive part of the sentence which is contained in the verb-stem, the author shows that to be the root from which all else in the sentence grows; it is the "storm-center," so to speak, that determines or is determined by everything else in the sentence. Strengthened or weakened by internal vowel changes, this root of predication calls in the personal endings as its agents; it is determined in its time or mode of predication by prefixes or suffixes; its activities come from or pass forth upon the noun which would be impotent or useless without it; and consequently, of course, upon the pronoun which is doubly dependent; until at length we have naturally passed over to the consideration of subordinate clauses and their moods. We have meanwhile been called upon to consider the infinitive and participle as really verbal nouns, have been introduced to the preposition, to help in fixing more definitely local relations, and the discussion closes with chapters on the particles and on meters.

The remarkably painstaking research here exhibited must be the despair of men who are not friends to hard work. Thousands of passages are cited from the Iliad and the Odyssey to illustrate the points under discussion. One example is seldom sufficient. Not infrequently they stand in wind-rows. These citations, with their excellent renderings, reveal a wealth of thought and expression to which the mere class-room student of Homer is an entire stranger. A new meaning shines out of some voice or tense; the cases have a larger application; the article or pronoun becomes a bridge by which we pass over, after a new fashion, from the principal to the subordinate members of the sentence; we are made to see what wonderful power of light and shade rests in the particles; but lastly—and that is a point where English scholars, as compared with American, are particularly strong—we see a large, generous way of rendering into the English, which shows a mind no longer under grammatical bondage or tied down to fussiness of class-room habit. Up to date all American editors of annotated classics might profit by such examples.

If anyone doubts either the originality or soundness of this scholarship, let him, after reading the prefaces, turn to such discussions as that on "Contract Forms," beginning on page 51. It is a sample. Or let him follow the author in the varied shades of meaning that are possible—say in the genitive and dative. Or, for a change, let him take up the treatment of the

subjunctive and optative. He will see many of his accustomed renderings made absurd. But he will seldom doubt the excellence or superiority of the renderings given here.

Yet perhaps even such a book as this may be criticised here and there. The chapters follow too closely upon each other. No chapter should have begun on the page where its predecessor ends. It seems as if the chapter on Prepositions interferes with the free play of the discussion, and would have been inserted more appropriately next to the chapter on Particles. The excellent table on page 79 should, for consistency, insert (1) *ν*, (2) *ν* under "acc. sing." immediately under the large type—*ν*,—ă. Should not the full-faced caption of section 139, read "Accusative with Adjectives" instead of "with Nouns"? The opening paragraph of section 176—"The term Tmesis is sometimes applied generally," etc.—needs a change in punctuation in order to rescue the sense. But these are trivial matters. No man who is teaching Homer, even to beginners, should be without this book. There are scores of citations that would be directly useful and hundreds of others indirectly so. It is, as I have said, an herbarium of Homeric specimens; and as from the study of well-ordered herbaria or extensive botanical collections, one goes forth to see the natural flowers lift their heads with a new freshness, so he who consults this book will see unfold before him the wondrous color and fragrance of that versatile dialect which was the medium—or the product, who knows?—of the glorious mind of that

> "Old man, who, clearest-soul'd of men,
> Saw the wide prospect and the Asian Ten,
> And Tmolus hill, and Smyrna bay, though blind."

BENJAMIN GILL.

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An Anglo-Saxon Reader.—Edited, with Notes and Glossary, by JAMES W. BRIGHT, Ph. D., Associate Professor of English Philology at the Johns Hopkins University. New York: Henry Holt & Co., 1891, pp. viii, 385.

In the author's own words (p. iii), "this book is planned for an introductory course in Anglo-Saxon. The glossary has been constructed so as both to facilitate the use of a grammar and to reduce the necessity of grammatical notes. Cook's excellent translation of Sievers's Grammar has made available for references the best exposition of Anglo-Saxon

phonology and inflection. March's Grammar will assist the teacher in matters relating to syntax."

But the distinguishing features of the work will hardly be gathered from the author's modest preface. These become patent only from close examination. First, we have a new selection of pieces from old English literature, prose and poetical, though not to the exclusion of well-known favorites. The selections new to Anglo-Saxon readers will serve to give a more comprehensive view of old English literature, and lend additional interest to the later study of complete texts. The pieces are arranged so as easily to introduce the pupil to the reading of old English. Part I consists of a chapter from St. Mark, and of excerpts from Alfred's translations; while the remaining pieces are arranged chronologically; the prose coming first, and the poetry last; the whole ending with the full text of the Phœnix.

Again, the texts are based either upon an independent study of the MSS. by the editor, or upon quite recent editions of the works by other scholars. The text is given without normalization, with occasional emendations clearly indicated as such, and with full variant readings. Throughout, the quantity is marked in accordance with the latest results of Germanic philology. This course must lead the student to a better knowledge of the monuments studied, and gradually induct him into the method of constructing a critical text.

Though occupying but little space, the notes are of the utmost help. Grammatical details having, in the main, been relegated to the glossary, the editor is free to treat his selections as excerpts from a noble national literature, and as no mean part of the world's literature. Accordingly, with each monument are mentioned the books most helpful for its study, so that colleges and students may provide themselves with the apparatus necessary for the broad and critical study of the beginnings of English literature, some knowledge of which, it is generally conceded, is essential to the understanding of any subsequent period.

Appendix I gives Lactantins's *De Ave Phœnice*, of which the first part of the O. E. Phœnix is an adaptation or a paraphrase. In Appendix II is given a brief but comprehensive account of Anglo-Saxon versification, upon the basis of Sievers's researches. As the first didactic presentation of a subject as interesting in itself as essential to an understand-

ing of the subsequent development of English metrical systems, this chapter alone makes the Reader indispensable to every student of Old English that has not access to Sievers's articles.

The glossary classifies the verbs, gives their principal parts, and thus helps the student over one of the chief difficulties in O. E. grammar. In all cases of irregularities in inflexion, reference is made to Sievers's Grammar, where full explanations may be found. Further, the regimen of adjectives, prepositions, and verbs is briefly indicated. The citations are practically complete, except in the case of pronouns, etc., and the glossary may be tested by reference to the text. Besides this, numerous etymological hints are given that solve many questions sure to arise, and suggest many more likely to be overlooked—a feature of invaluable assistance in the study of O. E. phonology.

Where so much is excellent, it may seem ungracious to suggest possible improvements; and yet I cannot but regret that all variations from the normal form (nom., infin., etc.) have not been entered in the glossary with cross references to the latter, a plan sure to save the beginner both time and perplexity. Perhaps, too, the author might have been more liberal with his emendations: for instance, ll. 9–13, on p. 13, might have been made to agree with the emended Latin text of the notes. As is almost unavoidable in the first edition of a work of the kind, a few typographical errors have crept in.

To revert to the author's plan: as we have seen, he intends the Reader to be used with Sievers's Grammar; and for those beginning the study of Old English as late, say, as the junior year of the college course, better text-books cannot be found. Indeed, the glossary is made upon such an excellent plan that students taking up the study earlier (in the South, as a rule, in the sophomore year) may find these two books the best to introduce them to a knowledge of Old English. If, however, any teacher should prefer a simpler grammar than Sievers's, he can readily alter the paradigms in one of Sweet's books to Sievers's classification and still use Bright's Reader. Whatever grammar may be selected, we feel sure that this Reader will be widely used, so superior is it to all works of the kind hitherto published. Its use is bound to uplift the ideal of Old English study and the author is entitled to and will doubtless receive the gratitude of all students of English.

MORGAN CALLAWAY, JR.

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Choice Readings: Being complete works by ten celebrated writers, selected, edited, and annotated for use in schools.—By CHARLES W. COLE, A. M., Ph. D., Superintendent of Schools, Albany, N. Y. New York and Chicago: Taintor Brothers & Co., 1892, pp. 351.

Wells of English.—By ISAAC BASSETT CHOATE. Boston: Roberts Brothers, 1892, pp. 310.

Studies in English Composition, with lessons in language and rhetoric.—By HARRIET L. KEELER and EMMA C. DAVIS. Boston: Allyn & Bacon, 1892, pp. IX, 210.

Superintendent Cole, in his *Choice Readings*, has prepared a most charming and a most useful book for school reading. The opinion is rapidly gaining ground that the ordinary school readers, composed in part, as they are, of "bits" and "pieces" from great authors, and in part of literature of very inferior workmanship, do not serve the purposes that ought to be kept in view in teaching reading. It is not enough to teach to read. It is not enough even to teach children to understand what they read. The teacher must also implant a taste for what is good in literature. Unless this taste for good reading is implanted, the power to read is too often an injury, rather than a benefit, to the moral nature. Literature that is evil in its tendencies is so easy to find, is so plentiful and so cheap, and withal appeals so powerfully to the baser instincts, that it is one of the most active agencies toward moral corruption in the modern world. The only antidote for the poison is the love of good literature, and this is to be acquired only by the patient, reverent, and appreciative study of good literature. As I have said, the school readers do not supply the necessary material. We can no more appreciate the beauties of a piece of literature by reading one of the excerpts in the reading books, than we can realize the beauty of a Greek statue by studying a mutilated nose or a fragmentary arm. Each selection in Mr. Cole's book fulfills these conditions. Each of them is a worthy specimen of good literature. Each of them is complete in itself. Superintendent Cole's notes are brief, but they supply all that is necessary to elucidate difficulties or obscurities in the text.

The tendency of the study of literature at the present time is toward the works of the great writers. Mr. Choate, however, has given us, in *Wells of English*, a study of many minor writers whose names are enrolled in the history of English literature from the middle of the thirteenth to the beginning of the eighteenth century. With him it is obviously a labor of love to

write of the lesser lights of our literature. He has evidently studied them with patience and critical insight. And yet the question arises: to what purpose was the book written? The studies are all detached. There is no tracing of the evolution of literature, of language, or of style. And it may be added that while some of the writers treated of have won for themselves imperishable fame, others have been deservedly allowed to sink into the grave of oblivion. The latter it is useless to resurrect. There are hundreds of writers of the present day whose works are infinitely more worthy of study.

In their *Studies in English Composition*, Miss Keeler and Miss Davis have given us a book from which high school teachers of English may derive many useful hints. As a rule, the exercises are much better done than the theoretical parts of the book. Even some of the exercises, however, are of very questionable ability: those, for instance, that involve the writing of book reviews. The plan of the book, however, is good, the intention being that the study of good models should always prepare the way for original composition.

W. H. M.

A Primer of English Verse, chiefly in its æsthetic and organic character.—By HIRAM CORSON, LL. D., Professor of English Literature in the Cornell University. Boston: Ginn & Company, 1892, pp. 232.

There are not wanting signs of a wide increase in the study of English verse in at least a dozen American colleges. There are now courses in English versification, sometimes practical and designed to aid the apprentice poets of the senior year, sometimes critical and intended to stimulate the appreciation of the masters of meter. The publication of Professor Gummere's *Handbook of Poetics* is one such sign, and the publication of Mr. Parsons's *English Versification* is another. This book of Professor Corson's is yet a third. Strictly speaking, the title seems a misnomer. At least it is difficult to frame a definition of a primer which would include a treatise like this. A primer is a work for the primary scholars, for the beginners; and Professor Corson's criticism and comment and analysis seem fit rather for the more mature minds of the senior class.

But, however misnamed, the book is none the less welcome for what it is; and it contains much that every student of English verse will be glad to have. It is intended to open the senses of students to the metrical beauties of poetry and to

awaken their perception of the graces of form. Professor Corson considers in turn the origin and the principles of the poetic unities and the effects produced by exceptional and varied meters, and by a shifting of the regular accent, and by additional unaccented syllables. He gives examples of organic variety of measures and he analyzes some of Tennyson's stanzas, and the Spenserian stanza as employed by its creator and by subsequent poets. He concludes with discussions of the sonnet and of blank verse; he does not pay any attention to any fixed form of verse except the sonnet, nor does he take up any unrhymed meter except iambic pentameter. Perhaps an investigation of the fixed forms used by Villon and his predecessors in France would reveal a close relation of the Spenserian stanza to the *ballade* octave, due probably to the devout study which the author of the *Faëry Queen* gave to the author of the *Canterbury Tales*.

Professor Corson's little book will be useful to all who have taken up the fascinating study of metrics. One could wish that the author had not retained in his extracts the absurd British spelling of *colour* and *odour*, which is annoying to the American eye. One wonders a little at the violence of the attack on Dryden as a critic (p. 107), and we admire not a little at the patience of the classes at Cornell to which professor Corson has read aloud every year Browning's *The Ring and the Book*—the entire poem, 21,134 lines!

BRANDER MATTHEWS

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The Works of Horace.—Edited, with Explanatory Notes, by THOMAS CHASE. LL. D. (Harvard), late President of Haverford College. Revised Edition. Philadelphia: Eldredge & Brother, 1892, pp. 458. Price. $1.10.

The first edition of this book was published in 1869, and now after twenty years the editor sends it forth again with many changes and corrections. In its old form it represented a class of text-books which was more common in this country once than now. The plan of composition was very simple: an editor would procure from his bookseller the editions current in Europe, and from them would select whatever he thought useful for American students. Chase followed this plan, and to his original supply he has now added eleven new authorities, some as old as Cruquius and Tanaquil Faber, but most of them the new editions of the last few years. The

text, originally an eclectic one, has been changed in several places, more often in orthography merely; and the notes show everywhere the influence of Schütz and Kiessling. Comparatively little has been added, and the size of the book is not materially increased. The arguments have been rewritten, the dates in many places changed, and the whole book brought down to date. Probably there is no American edition of the entire works of Horace which better represents the present state of Horatian criticism, but the last edition worthy of being named was that of Lincoln in 1866. In Chase's work the fault is not so much one of detail as of plan. It is a hazardous task to try to explain Horace in the space of 458 pages, and still more so to try within this brief compass to make a complete school edition. The first and most important matter which has been sacrificed is the comparative study of the poems. Cross-references are very rare. Even in the index to proper names, Tibullus is described twice, once under Albius and again under his better known name. Illustrations from other ancient writers are infrequent; and when given are often useless to those for whom so elementary an edition is intended, such as the references to Servius and Priscian on *Ars Poetica* 65. And on the metrical side the book is weak; in the metrical introduction logaœdic verse is unmentioned, and in the body of the notes the meter is neglected. Chase's interpretations are easily defensible; among the forty authorities there is always some one who will protect him: still one longs for the independent judgment of Schütz, the leisurely treatment of Wickham, or the literary taste of Nauck. The notes are terse and plain, necessarily short; but it is to be hoped that the barbarous "illy" will be expunged from the comment on Odes 4, 12, 7. The constant change in translation from "thy" to "your," and similarly from "thou" to "you," is for the better. On the printer's side the book is pleasing, the solid page having been broken into paragraphs. The amusing reference to Whitefield's adaptation of Odes 1, 7, 27, is still given in spite of Bentley's note, and often Chase is unfortunate in his modern parallels; yet the book has much of value and will doubtless meet with the same popular acceptance as its predecessor.

W. A. MERRILL

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IX

EDITORIAL

The meeting of the National Educational Association at Saratoga was successful even beyond expectation. It was easily the best educational meeting ever held by that great body. The excursionists and careless hangers-on were conspicuously absent, and in their stead there came several thousand of the most devoted and enthusiastic teachers of the country, together with almost every distinguished leader of educational thought and educational administration in the United States. The well arranged series of Round Table conferences attracted a remarkable group of men and women interested in the serious study of philosophy and pedagogy. The papers and discussions were able, vigorous, and timely, and the work of the several departments—particularly the manual training department, under the intelligent and enthusiastic leadership of Assistant Superintendents Leipziger and Hoffman of New York—was conducted on a high plane.

The Saratoga meeting gave but little comfort to the philistines and perpetual phrase makers. It was a serious and determined body, in which the progressive element was more largely represented and more influential than ever before. There was a conviction that work was to be done toward solving the educational problems of the country and that the National Educational Association was the proper body to lead the way. It was felt that the continued piling up of large sums of money was unnecessary and dangerous, and would lead to foolish expenditure, if not to downright jobbery. In fact, the result of the meeting was to arouse a new enthusiasm in the minds of some of the strongest men in the country, who had almost despaired of seeing the Association roused from its lethargy and debating-society attitude.

Much of the credit for this changed condition of affairs must be given to the organization of Round Table conferences,

began at Toronto in 1891, and greatly extended, under the direction of Dr. Harris, at Saratoga. As was sure to be the case, these Round Tables of small groups of specialists, discussing technical philosophical and pedagogical questions of fundamental importance, were scoffed at by the educational "boomers" and "whoopers-up," who do not understand such questions and care nothing about them. No little ridicule was heaped upon some of the technical terms employed at these conferences. But, nevertheless, they were held, and were very successful and very stimulating. Men and women were drawn to the Association, and led to take an interest in its general work, who had never been near it before. At the close of the session the Round Tables were formally adopted by the directors as part of the work of the Association, and a committee was appointed, consisting of William T. Harris, James MacAlister, and Nicholas Murray Butler, to take special charge of their organization and future conduct.

But by far the most important and far reaching step taken at Saratoga, was the action of the Council and Board of Directors in resolving to undertake some specific pedagogical investigations. The committee appointed at Toronto [1] also reported in favor of this step. The specific action taken grew out of a conference of representatives of colleges and secondary schools called, by authority of the National Council of Education, to meet in Saratoga on July 8. This conference was well attended, some thirty leading institutions having sent delegates. Harvard, Columbia, Cornell, Vassar, University of Nebraska, University of California, Oberlin, and Wesleyan were among the colleges participating. After a careful discussion, extending over three days, it was decided that a special effort should be made to improve and systematize the work of the secondary schools. It was agreed that uniformity in their work, and a single curriculum as a preparation for college, were neither possible nor desirable. On the other hand, it was felt that the twenty odd subjects taught in secondary schools should be carefully examined by specialists with reference to these four points: (1) What topics of each subject should be taught in secondary schools, and in what order; (2) what method of presentation is the most efficient; (3) how many week-hours

[1] EDUCATIONAL REVIEW, II: 278.

per year should be devoted to each subject taken up; (4) what tests of proficiency in every such subject can be devised. The value of such an investigation as this is apparent. Its results will fix the standards of secondary school work in the United States, and great benefits will accrue not only to such schools but to the elementary schools and the colleges as well. To carry authority, however, the specialists must be selected with great care and their conclusions must be compared and co-ordinated by a representative body. The conference selected as such a body a Committee of Ten, as follows: President Charles W. Eliot of Harvard University (chairman); Dr. William T. Harris, Commissioner of Education; President James B. Angell of the University of Michigan; Mr. John Tetlow, Master of the Girls' High School, Boston, Mass.; President James M. Taylor of Vassar College; President James H. Baker of the University of Colorado; President R. A. Jesse of the University of Missouri; Mr. O. D. Robinson, Principal of the Albany (N. Y.) High School; Mr. James C. MacKenzie, Headmaster of the Lawrenceville (N. J.) School; and Prof. Henry C. King of Oberlin College. This committee was confirmed first by the Council and then by the Board of Directors, and twenty-five hundred dollars was appropriated to pay the expenses of the investigations. This is a noble use of the funds of the association, and, so spent, its value will increase a hundredfold. If this experiment is as successful as its friends anticipate, other investigations will undoubtedly follow, and, in undertaking them, the National Educational Association will become a practical power for good in the land.

To the great satisfaction of everybody, the question of the relation of the Association to the international congresses to be held at Chicago, in 1893, was amicably settled. The great educational congresses are to be organized and conducted by a committee of the National Educational Association, the World's Congress Auxiliary co-operating as a local committee of arrangements. Of the former committee the Commissioner of Education is chairman. His associates are James MacAlister, art education; William H. Maxwell, school supervision; W. N. Hailman, kindergarten; Nicholas Murray Butler, higher education; Ray Greene Huling, secondary education; James L. Hughes, elementary education; E.

Oram Lyte, normal and training schools; Andrew J. Rickoff, manual training; N. Coe Stewart, musical education; C. W. Bardeen, educational publications; Francis A. Walker, technical education; G. Stanley Hall, experimental psychology; and J. G. Schurman, rational psychology.

These congresses will be held late in July, 1893, to meet the convenience of the foreign representatives, and will occupy about one week. The National Educational Association will not assemble as such, but in connection with the congresses. For this reason the general and departmental officers elected in 1892 will hold over until 1894, when the next regular meeting will be held. Seattle, Helena, Milwaukee, and Denver are all talked of as the place of meeting in 1894, but the last named city seems to be the favorite.

The weighty address on Sex in Education by Sir James Crichton-Browne, the substance of which appears elsewhere in this issue, has attracted attention and provoked controversy on both sides of the Atlantic. The array of facts cited by the learned orator constitutes a very real addition to the general knowledge of the intricate subject of the psychology of sex; but it may legitimately be doubted whether any very definite and dogmatic conclusions, unfavorable to the higher education of women when that education is properly organized and supervised, can be based upon it. Overpressure and defiance of hygienic rules are quite as injurious to young men as to young women, and it is very special pleading to ignore the fact. High schools and colleges for women may not be as well administered in Great Britain as in America; but, even so, the proper remedy is their improvement, not their abolition or curtailment.

Theodore W. Dwight, emeritus professor of law in Columbia College, whose death occurred at the beginning of the summer vacation, was perhaps the greatest teacher of his country and generation. This is the uniform testimony of the thousands of able men, now the leaders of the legal profession in the United States, who were his pupils. His profound knowledge, his power of clear statement, and, above all, his intuitive sym-

pathy with the student's point of view and his appreciation of it, gave him a power in the class-room that few teachers have ever had. Professor Dwight knew nothing of pedagogic devices, but he was a great pedagogue. He himself was a method of teaching. His power was personal, and cannot be bequeathed or imparted to others. The attempt to make the public believe that there is a "Dwight method" of teaching law, or anything else, is a hollow mockery. It is an unworthy attempt to derive pecuniary profit from a great name and reputation.

A curiously stupid effort is being made by a small clique of persons, whose interest in education is not entirely scientific or philanthropic, to convey the impression that the college men, who are now taking a greater part than ever before in educational discussions—to the immense improvement of these discussions, by the way—know nothing about the details of common school work or the limitations under which it is carried on. Very often this policy takes the form of personal abuse, public or private, of the college presidents and professors in question. President Eliot, in particular, has been subjected to treatment that is simply outrageous. Because he has said some things about high school and grammar school work that individuals directly responsible for that work do not like, he has been vilified and abused by the representatives of the dominant optimistic, self-glorifying philistinism in a way that would do credit to Billingsgate. As a matter of fact, President Eliot's knowledge of what the elementary and secondary schools are accomplishing, both here and abroad, is both extensive and accurate. Ever since he appeared before the Department of Superintendence at Washington, some four or five years ago, at the invitation of Mr. Dougherty of Peoria, he has made important contributions every year, and of a very practical character, toward the solution of our present common school problems. No other one person has accomplished and suggested half as much in that time as the President of Harvard. It may safely be predicted that the substance of the reforms marked out and contended for by President Eliot in the college, the secondary school, and the elementary school, will, in time, become characteristic of our American educational organization. They are not only theoretically sound, but, what is even more important, entirely practicable.

An interesting document may be expected when the full answers are published of the faculties of the several German universities to the questions addressed to them by the governmental authorities, regarding the admission of women to university privileges. If present signs are not misleading, some radical steps will follow the collation of these replies. It is true that most, if not all, of the faculties of philosophy have given answers unfavorable to the admission of women. But, on the other hand, leading conservatives like Professor Grimm of Berlin are abating the violence of their opposition, and the authorities of Baden have authorized the University of Heidelberg to admit women to the courses offered by the faculty of mathematics and natural science. Slowly, but surely, women are entering the universities of the world on equal terms with men. At St. Andrews in Scotland, and at Yale and the University of Pennsylvania in the United States, full university privileges in philosophy, philology, and letters are now open to women; while at Oxford and Cambridge, Harvard and Columbia, the privileges are thinly veiled under annexes or affiliated colleges.

President Thwing of Adelbert College is of opinion that the summer vacation is too long. In this contention he is, we believe, not justified. The summer vacation is too long to be wholly wasted, but it need not be. It is not too long for either teacher or pupil to get relief from the routine of the academic year and carry on studies for which the demands of the regular school and college work leave no time. For the ambitious and active college professor, the summer vacation is a period of hard work. Investigations are carried on, researches made, other institutions and lands visited and studied. Every bit of this work is educational in the highest sense. Not a week of the present summer recess can be surrendered without loss of educational efficiency.

This same question has been agitated recently in Europe, and Professor Flemming of Kiel has brought together some interesting information on the subject. At Oxford and Cambridge there are twenty-four weeks of vacation every year; at University College, seventeen weeks; at the Scottish universities, nineteen; at the French faculties, from seventeen to

twenty-two; in Belgium and Denmark, nineteen; in Russia, Sweden, and Norway, eighteen; at the German universities, from seventeen to twenty-two weeks. By an ordinance dated January 5, 1892, the Prussian Ministry of Education ordered that the summer semester at the universities must hereafter begin on the Wednesday after Easter, and continue for sixteen weeks, with a recess of not exceeding seven days at Whit Sunday. The winter semester will hereafter begin on October 10, and continue until the last day of February, a recess of not less than ten nor more than sixteen days being granted at Christmas.

A number of protests have reached the EDUCATIONAL REVIEW against the practice of many colleges in conferring the degree of Doctor of Philosophy as an honorary degree. This pernicious and demoralizing practice was more marked at the last Commencement season than ever before. Scores of these degrees were given without any warrant whatever. It cannot be too strongly insisted upon that no college is justified in giving this degree at all, and no university should confer it except for advanced study and research carried on in residence. The suggestion has been made that the EDUCATIONAL REVIEW should make a list of the colleges that persist in this abuse and publish it from time to time. It might be more efficacious to print a list of the persons who receive and accept such a degree.